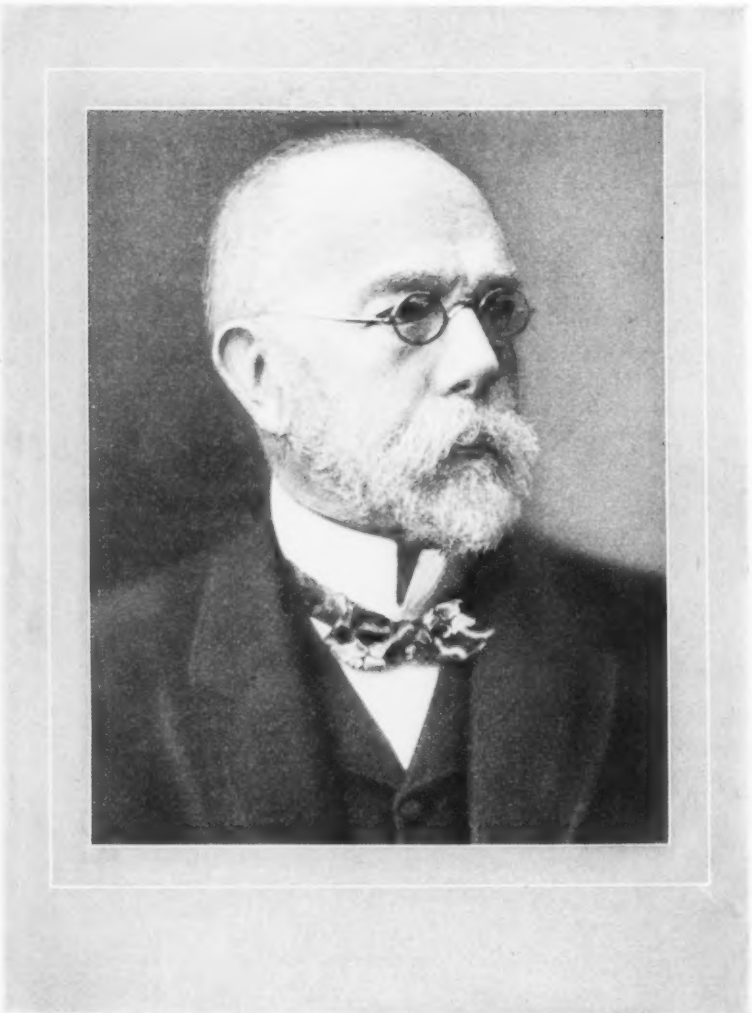
Clinical Medicine and Surgery

August, 1929 Vol. 36, No. 8

Leading Articles



ROBERT KOCH, M.D.

DISCOVERER OF THE TUBERCLE BACILLUS

CLINICAL MEDICINE AND SURGERY

VOLUME 36 AUGUST, 1929 NUMBER 8

Dr. Robert Koch

WHEN a man makes some monumental contribution to the progress of science and human welfare, he is apt to be remembered for that alone, while his other labors, no matter how important, are rarely and vaguely thought of. This has, to a considerable extent, been the case with Robert Koch, whose discovery of the cause of tuberculosis has largely overshadowed all his other valuable labors.

Koch was born, of well-to-do but by no means illustrious parents (the only remarkable thing they did was to bring him into the world), at Klausthal, Hanover, Germany, December 11, 1843.

After finishing his preliminary education, he studied at various universities and was graduated at Goettingen, in 1866, where he won a prize for an essay on "The Nerve Ganglions of the Uterus".

He then took up the practice of medicine in Posen, and filled his otherwise unoccupied hours with the study of the then-new science of bacteriology. His practice and his studies were interrupted by the Franco-Prussian War, in which he served with credit, resuming his professional and scientific labors when the conflict was ended.

In 1876, Koch made the important discovery of the spores of the anthrax bacillus; and in 1878 he wrote a monograph on "Researches in the Etiology of Surgical Infections," which is still a standard work. So it was not surprising when he was made a member of the Imperial Board of Health, in 1880.

On the evening of March 24, 1882, Koch read a paper before the Physiological Society of Berlin, entitled, "The Etiology of Tuberculosis." The full effect of this monumental communication, upon the life and happiness of the human race, will probbly never be estimated, for it made possible the prevention and control of a disease, theretofore disastrously widespread and almost invariably fatal. The tale of the lives, homes, health and efficiency conserved by this discovery, to say nothing of the vast treasure saved, is truly staggering.

In 1883 he was made a Privy Councillor of the Empire, with the title of Excellency, and director of the German Cholera Commission, in which capacity he went to Egypt, where that disease was then raging, to study it. His researches led to the discovery of a specific vibrio as the cause of cholera, and the result has been that, from a pandemic pestilence, decimating the world from time to time, cholera is now rather rare, even in most parts of the Orient, and is readily controllable by sanitary measures.

In 1885 he was appointed professor at

the University of Berlin and director of the Institute of Hygiene; in 1891, director of the Bacteriological Institute of Berlin; and in 1905 he was awarded the Nobel Prize for achievements in physiology.

The motto of his first scientific communication was, "*nunquam otiosus*" (never idle), and he exemplified it in his person throughout his life. Wherever epidemic diseases were killing their hundreds or thousands, at home or abroad, there was Koch in the midst, studying and fighting—making the world safe for humanity.

In 1896 (and again, in 1903) he went to South Africa to study rinderpest (a highly destructive disease of cattle), and devised a method of vaccination against the scourge. In 1897 he studied malaria, and in 1905 the sleeping sickness, in German East Africa. But these are only a few of his noteworthy undertakings. He has left us a number of books in which his discoveries are set forth.

Not only his native land, but all the civilized nations of the world, united to bestow honors upon this physically small, serious, dignified and forceful man, so that the mere list of his scientific connections and decorations would fill pages.

He passed from this scene of his multifarious labors at Baden-Baden, where he had gone to seek relief from a cardiac affection, on May 27, 1910—only 67 years old! But his name will never pass from the hearts and minds of students of science and helpers of men, though the world at large will never be able to realize the magnitude of his services to the human race.

Man may strive, in all his thoughts and acts, to attain contentment; but true happiness is experienced only by those who find it in themselves.—Prof. Rezsö Bálint.

The Cleveland Clinic Disaster

ON MAY 15, 1929, the country was shocked by the news of the disaster which had befallen at the Cleveland (Ohio) Clinic—the famous institution developed by Dr. George Crile—when 50,000 x-ray films, stored in the basement of the Clinic building, "let go," killing 126 out of the 225 persons who were in the institution when the trouble started.

During the time that has elapsed since then, several investigations have been conducted to determine the cause of the fire and explosions, and results are reported in *Chemical Engineering* for June, 1929. The facts, briefly summarized, are these:

The films (weighing about 7,000 pounds) were stored in a fireproof room, *in the basement*. This room had *no vents to the outside, no automatic sprinklers* and was lighted by ordinary, *unguarded*, 100-watt electric bulbs, attached by *common cords* to outlets at or near the ceiling, the cords being wrapped around the *steam pipes* which passed through the room, so that the globes hung down, *in contact with the edges of the films*.

The films themselves, most of which were in manila envelopes, were *piled loosely on open wooden shelves* or placed in ordinary steel letter files.

There was talk of a leak in the steam pipe, which was supposed to have caused the trouble, but experiments have shown that steam, even under pressure and at a high temperature, will not ignite x-ray films.

On the other hand, one of the electric light bulbs was found, after the disaster, with the switches in the "On" position, and so located that it must have been in direct contact with the edges of the film. Experiments have shown that films, in contact with a 100-watt bulb in action (which generates a temperature of 440°F.), ignite in from two to seventeen minutes. This did not occur, during a 5-hour test, if the globe was protected by an ordinary wire guard, which keeps objects one-half inch from the glass.

Most of the deaths were due to "gassing." A study of this phase of the matter shows that 7,000 pounds of films would generate from 14,000 to 20,000 cubic feet of deadly

gases (according to the temperature and the presence of air), consisting of nitrogen oxide (35 to 60 percent); carbon monoxide (34 to 38 percent); and hydrogen cyanide —"hydrocyanic acid gas"—(0.6 to 3 percent). Considering the size of the building, *each* of these gases was present in lethal concentration.

Roentgenography has been in use sufficiently long to permit the formulation of rules for the safe storage of such dangerous things as sheets of nitrocellulose (nothing other than a form of gun-cotton!), and these rules have been widely published on various occasions. All or most of them were violated at the Cleveland Clinic.

In the long run, those who tamper with or neglect the laws of nature pay the inevitable penalty; nor do world-wide fame and a long record of valuable service to humanity constitute an excuse for the neglect of any precaution needed for the conservation of human life.

Evil is not a self-existent power. It is but the by-product of man's violations of the laws of nature, in the course of his evolution.—Eugene Fersen.

Commercialized Medicine and Politics

AT LAST, after years of silent suffering, the physicians of this country are bringing their woes out into the daylight and discussing them openly—and this is well.

Among the forces which menace the practitioner most seriously are commercialized medicine and politics, both external and internal.

Commercialized medicine means the wholesale treatment of the sick and is, necessarily, based, to a large extent, upon the idea that the human body is a mechanical engine to which various things (called diseases) may happen, as a worn bearing, a flat tire or a leaking radiator may happen to an automobile; and that when there is a knock in the engine or a squeak in the chassis, all that is necessary is to take the "old bus" to an expert mechanic who, with the necessary tools at hand, will locate the trouble and repair it.

If the human organism were really a simple machine, like the electric Robots which are now causing much discussion, this plan would work beautifully — and there would be no need for long and complicated medical curriculums. The automechanic needs only a few months of practical training in a shop or garage, after which he can go out "on his own" and function reasonably satisfactorily.

The handling of men and women is not so simple. In the first place, we can not put in new "spare parts" to replace those that break or wear out; neither can we lubricate the joints or the brain, in order that they may function without friction. Man is a *self-conscious* being, whose mind, emotions and body are merely instruments for his manifestation in the material universe and whose physical parts and organs are always mutually reacting with and being acted upon by his desires, emotions and thoughts; and these facts must be reckoned with in treating the abnormalities of structure and function which constantly result from his ignorance and carelessness.

The irregulars (and, unfortunately, some regular physicians) have taught the people, by paid advertising and by word of mouth, that they are highly complicated machines and can be overhauled and reconditioned by any reasonably clever mechanic. We must thoughtfully and vigorously, individually and collectively, set about reeducating them as to the facts, *using the means so profitably employed by the men we profess to despise* — public and private talks to groups or individuals, radio broadcasting, writing sound and sane articles for the lay periodicals and *using paid-for space in the newspapers,* not to extol personal prowess, but to disseminate needed information.

We do not need to *fight* the irregular, personally or in groups. All that is necessary is to get the *facts* across to the public, whereupon they will see the fallacy of some

of the ideas now being foisted upon them, and the cults will die of inanition.

The problem of the irregulars is the least of our difficulties. It is the well-meaning but unenlightened "uplifters" and those of our own number who are boring from within that give us the most justifiable concern—the endowed pay-clinics (and many carelessly conducted free-clinics), Health and Life Extension Institutes, the unwarranted and pernicious entrance of the public health agencies into the practice of *curative* medicine and the disastrous eagerness of politicians within and without the ranks of the profession, to *manage* medical practice according to some prejudice or superstition or for their own personal profit.

The philanthropists who are embarrassing us by founding pay clinics, go in for furnishing medical service at a loss, rather than dispensing food, clothing and shelter on the same basis, because, if they tried to hand out these material things in such a manner, the grocers, the butchers, the clothing manufacturers and the landlords (among which classes the wealthy charity dispensers may, themselves, be numbered) would bring such pressure to bear that the scheme would be dropped; while the medical profession suffers in somnolent silence, and certain individual doctors cooperate in doing their professional brothers a very ill turn.

The Health Institutes and Life Extension Bureaus, as well as the pay-clinics, all depend upon *physicians* for conducting their enterprises. If those medical men who do the dirty work for these institutions (generally at scullion's pay) could be brought to see that such things simply *will not do*, and could have a little spunk injected into them, the whole system would fall flat.

If the public health agencies—who have, goodness knows, a big enough field of endeavor, which is legitimately their own—are edging into the field of curative medicine, it is because the ignorant public is *asking* for it. How can we expect the "man on the street" to see the fallacy and inexpediency of such a course when many physicians fail to appreciate it?

If we could bring the people of this country face to face with the question, "How would you like it if there *were no doctors* except those of the Clinics, Institutes and Boards of Health—no one to come to the bedside at night; no one to take a *personal* interest; no one to help, sympathetically, in an emergency?" they might see the light, especially when we convinced them that, if these politically or commercially inspired and lay-managed institutions go on unchecked, such a deplorable condition may actually result.

If outside politicians hamper and interfere with our activities, by ill-considered legislation and otherwise, who is to blame? Who *elects* these people? Who gives them their instructions? How much does *each individual physician* bestir himself to see that he is satisfactorily represented, in the Councils of the Nation, the State and the Profession? If we will not take care of ourselves, who do we expect will take care of us?

The diagnosis of our present complaint is ignorance on the part of the public and inertia on the part of physicians.

The treatment indicated is *education of the people* (if the "Code of Ethics" interferes, *revise the Code*—it is high time!) and *awakening of the profession* to the need for *united, coordinated and intelligent action*, in this new world, whose keynote is combination and loyalty in the achievement of a common purpose.

It is just as much a deception of the public to have something good for them and not tell them, as it is to have something bad and tell them it is good.—Illinois State Medical Society.

Militant Doctors of Chicago

THE telephone directory has come to be almost as essential an adjunct of modern life as is the dining table; and out of it has emerged, as a by-product salvaged by the genius of the twentieth century advertising man, the classified directory or "Red Book".

Most urban physicians, dentists, architects and other professional men, occupy suites of offices, in groups, where one telephone, by the use of a private switchboard, serves them all. There is, of course, only one number which appears in the directory after the name of each member of the group, but on the books of the telephone company, is charged to one man, who pays the customary service fee, the others paying a certain fixed sum per year for having their names listed in the directory.

Hitherto, all names of business and professional people, of all kinds, which appeared in the Directory, have been included in the "Red Book" without charge, that publication being financed by the paid advertisements which it contains. It is, rather frankly, an advertising medium.

Of late, the publishers of this book have sought another source of revenue by informing the members of certain professional groups in various cities, who made use of a joint telephone not registered in their own names, that if they wished to be listed in the "Red Book," they must pay another sum, in addition to what they have been paying for the inclusion of their names in the directory. Most of the persons so approached have, perhaps, sworn a bit, under their breaths, but have submitted. If the whole thing seems rather insignificant, remember that it means a million dollars or more each year to the physicians of the United States.

All went well until these enterprising people tackled the physicians of Chicago, and then the fat was in the fire! Not that Chicago's medical men are less willing spenders than are others, but they hate to feel that anyone is taking advantage of them. In any case, they suspect that the listing of their names in the "Red Book" is almost too near an advertisement to fit in exactly with the Code of Ethics, and that this demand partakes of the nature of a "racket".

So now they declare that, unless the directory fee covers "Red Book" listing as well, their names must be omitted from the latter publication. Furthermore, they have enlisted the cooperation of the dentists, architects, lawyers, and osteopaths and have taken the matter up with all of the various national organizations connected with these professions, so that the fight becomes nation-wide.

Physicians have acquired the general reputation of being poor business men, and even, one fears, of being poor citizens, at times, because they are so absorbed in their work that they lack public spirit.

The doctors of Chicago have proved an exception to this rule (if it really is a rule) and have started a protective back-fire that may have large consequences before the question is settled.

Don't *tell* people how good you are—*show* them!

Avocations

WHEN most of us were lads in grammar school, one of the genial habits of the teachers was to write on the blackboard each day some "gem of thought," culled from the writings of more or less eminent persons. These we copied in notebooks devoted to that purpose and memorized *ad libitum*. It is surprising how some of those "old saws" stick in the memory, and there is little doubt that they definitely influenced many lives, for we were plastic, then, and believed implicitly anything which was quoted as the opinion of some "great man."

One of those things which has remained with us, and which is still accepted as a doctrine by many, went like this:

"The man who seeks one thing in life, and but one,
May hope to achieve it before life is done:
But he who seeks all things wherever he goes
Only reaps from the hopes which around him he sows
A harvest of barren regrets."

Of course, there are "single track minds"

to whom this dictum applies with much force, but for the average man (if there is such a critter, which seems doubtful), we take issue with this "gem," thus:

The man who seeks one thing in life, and but one,
Will be a fine mummy before life is done:
But he who seeks all things may have put away
Less cash in the bank at the end of the day—
But he's lived a rich life, all the same.

Concentration on his job, *during working hours* is a fine and necessary practice for every man who really desires to get somewhere in his line; but it is poor business to carry the office home at night or lug it around on Sundays and holidays. Every athlete knows that it is possible to overtrain and "go stale."

There seems reason to believe that there are too many "stale" doctors in this Land of ours, although the percentage of sensible ones grows greater each year, and our profession holds more of interest and variety than almost any other. We therefore suggest, as an antidote to or prophylactic against this disastrous condition of staleness, the adoption and active pursuit of one or more definite avocations—known colloquially as hobbies.

Various games and sports—golf, tennis, fishing, hiking, archery and the like—are highly desirable and necessary, for a sedentary man, but they are *not enough* for people who are sufficiently accustomed to using their brains to make such exercise agreeable and free from that creaking which always issues from rusty machinery in action. Physicians and other thoughtful people need hobbies which will exercise the intellectual and emotional, as well as the physical, faculties and which can, therefore, be pursued with eagerness and profit, long after the animal parts of us have ceased to give us a sense of exhilaration in their use.

Many of these avocations are such that, while they furnish relaxation from our customary, bread-winning labors, they will have a positive, if indirect, effect in increasing our efficiency as physicians. One such is discussed by Dr. Young, in this issue. Among others may be mentioned the study of various foreign languages, philosophy, psychology, sociology, metaphysics, zoology or botany (in any of their branches); the practice of writing of all sorts, with the necessary research which must accompany any serious literary effort; photography (with which may be combined much salutary physical exercise in the open air); and a number of other matters.

Nor are the mental faculties alone to be cultivated. The best means of warding off the encroachments of senility is by keeping the emotions fresh and responsive and enthusiasm at a high pitch. The study or (better) the practice of some form of artistic expression—music, painting, sculpture, poetry, bookbinding, conversation or any one of a score of other arts—is of the highest value in this connection.

This is not something to be put off until one "has more time" or until the muscles begin to fail and the joints grow stiff. The man who has not developed interest and facility along these lines during his active years, will not do so when he is old, though he can follow them up, *after they are once well started*, so long as his physical organism holds together and his brain continues to function.

Now is the time to begin work upon those avocations which will fill the declining years with joy and satisfaction and assure a "green old age."

A well-behaved mind grows only in a well-treated body.—Munsterberg.

Allergy and Toxicosis

THIS is the time of year when hay-fever, with all its distressing symptoms, visits a considerable number of our citizens. Those whose bank balance is satisfactory go where their particular noxious weeds "aint"; while the poor devils who have to keep working in order to go on eating, drizzle and snuffle and wheeze and pray their doctors for relief; insomuch that these doc-

tors scratch their heads and mutter, "By golly, I must study up this allergy thing and see if I can't give these folks something reasonably permanent in the way of help."

The day when we will know all there is to be known about "this allergy thing" is still in the future; but some of our students and thinkers *are* doing work which lets in a glimmer of light, here and there. There was a good article by French in our August, 1928, number (p. 571); another last month; and still another in this issue, as well as other notes and abstracts from time to time.

Even so, we are still theorizing as to what allergy or hypersensitiveness *is*, and any man who has an hypothesis on the subject, which seems to work, is entitled to a hearing.

Some years ago, Adam, of Glasgow, announced his belief that bronchial asthma—a condition recognized, since we have known anything at all about allergy, as belonging in the allergic class—is a symptom complex based on a condition of general, systemic toxicosis.

In this country, Haseltine, of Chicago, has been singing the same song, only louder and with more conviction, and, with the help of several clever internists (glorified general practitioners) has been getting some results which certainly look like cures, even in severe and long-standing cases of asthma, by detoxicating the patients (no easy job, by the way) and clearing up ethmoid infections.

If the attacks have come on after eating milk or eggs, or after associating with horses or cats or any of the other prolific sources of allergens, the detoxicating regime seems to relieve the allergy, as well as the bronchospasms, suggesting that individual hypersensitiveness may not be so recondite a matter as it sometimes seems.

This idea, that allergy in its various forms is based upon perverted body metabolism, may not be orthodox, but if it *works* we must consider it respectfully until such time as it is controverted by someone who will come along and tell us, not a few mere isolated *facts*, but the *whole truth* about this (so far) more or less mysterious condition. No true physician would refuse to give a patient assistance, if he were reasonably sure that it could be obtained by some remedy or procedure which was not approved by the "authorities".

Every medical man who sees hay-fever patients and who aspires to give them more than temporary relief, would do rather well to study these things carefully and give some of the new ideas a trial, *keeping careful records* all along the line and reporting results in due season. Only thus can we come to a knowledge of the soundness and value of the things which the investigators have told us, from time to time.

Man stumbles over mole-hills, never over mountains.
—Chinese Proverb.

The Pharmacist at the Fountain

EVERYTHING moves fast, these days, and endurance records of all sorts are being smashed to bits every week. The Drug Stores have moved as fast as the best of them and seem out for a record of having such a varied and heterogeneous stock that they can furnish, on a moment's notice, anything from a paper-clip to a pickled elephant.

The bustling, modern, general-service emporium which we call a Drug Store—just why it is hard to say, for the space and time occupied by drugs, in most of them, does not constitute ten percent of the layout—is a far cry from the dignified and professional-looking pharmacy of our grandfathers—and even our fathers.

It is fruitless to enter into a discussion as to whether the study of a profession is a more laudable and worth-while undertaking than going into business. Both kinds of activity are necessary to our happiness and prosperity, and their worthiness depends upon the attitude of the individual man in either line.

There is, however, no doubt that success in a profession requires a *different* type of mental equipment from that needed to make a business venture prosper. The plodding study and devotion to precedent which bring a lawyer to the front would sit ill upon the proprietor of an up-to-date haberdashery; and the coal dealer, who sells his commodities by the ton, could scarcely change places with the chemist, who thinks in thousandths of a grain.

Neither can the seriousness and the genius for meticulous accuracy required of a high-class pharmacist mingle, as a rule, in the same skin with the buoyant vivaciousness and high-pressure salesmanship of the fellow at the perfume and cosmetic counter, or the slap-dash speed of the "soda-jerk" and sandwich dispenser.

It would seem that the time is coming, if it is not already here, when the two types of service will have to be separated, so that we shall have, on the one hand, the *professional pharmacist,* possessing a keen sense of his responsibilities, to the physician and his patient, and the studious mind which will fit him to face these responsibilities worthily; and on the other the *drug store salesman,* full of pep and new ideas of merchandising and eager to serve the minor personal needs of his community with speed and a smile.

There is no reason why the modern drug store should not carry a sufficient stock of domestic remedies, to be sold over the counter by the bottle (like shaving cream, toilet water and ginger ale), and of minor surgical supplies and rubber goods, to entitle it to retain the familiar name by which it is now known, leaving the more dignified (if not more honorable) title of pharmacy for the institutions devoted entirely to the compounding of prescriptions.

There is, in fact, no reason why the drug store should not have, in addition to the cigar and tobacco department, the soda fountain and lunch counter department, the department of cosmetics and toilet articles, the department of toys and small hardware, the stationery department, and various others, a department of pharmacy. *But the last named should be kept strictly separate from all the others.*

The type of man who would make a thoroughly dependable pharmacist would not, as a rule, be a particularly valuable asset at the soda fountain; but even more positively, the really keen soda dispenser would not be the man upon whom a physician or a sick man would desire to depend, when it came to compounding powerful drugs which might carry life or death.

If the drug store has not enough prescription business to keep at least one registered pharmacist on a full-time basis, it should abandon this line of service entirely and send all prescriptions to a near-by pharmacy. If there is not one handy right now, it looks as if there soon will be. Such institutions are growing in numbers and importance.

It appears to be a mistake, which makes for inefficiency in several directions, to ask or require the kind of man a *really good* pharmacist should be, to perform the kind of services required of a twentieth-century drug store clerk; and it certainly would be a poor policy to put the active and highly trained salesman to compounding a prescription whose price would be seventy-five cents, when, in the same time, he might have been selling ten dollars' worth of goods out in front.

"Let the shoemaker stick to his last," the "jerk" to his jerking and the pharmacist to his mortar and pestle.

LEADING ARTICLES

The Search for a Differential Stain for the Cancer Cell*

By Joseph Colt Bloodgood, M.D., F.A.C.S., *Baltimore, Md.*

THIS morning I excised a small, dark, hard nodule from the back of the hand of a doctor who has worked with the x-rays for years. The size of this spot was twice that of the head of a white pin. It was discolored black like anthracite coal. It felt almost as hard as a nail. It moved with the skin. This physician told me that it had been present a number of years and had enlarged a little in recent years. It resembled somewhat what we call an x-ray keratosis. There was one other speck not much larger than the point of a pin. Otherwise the skin of both hands was normal.

This member of the medical profession knew that all of his colleagues who preceded him in his x-ray work and who had taken no precautions to protect themselves developed, on their hands and fingers, numerous areas of this kind, generally larger, and that ultimately, after years, cancer developed in one or more of these spots and at the present time but two or three of a band of fifty or more pioneer x-ray workers remain alive, and all of these three have had one or more of these cancers removed from their hands.

Naturally, this member of the younger group was anxious. Apparently he had used every possible protection, but here was a spot on the back of his hand which, although small, looked entirely different from the surrounding skin and could be located by the end of the finger.

This spot was cut out with the knife, or, to express it less harshly, "excised with the scapel." The area was first anesthetized by injecting a very weak solution of novocaine (procaine). The diseased spot was removed with a good margin of healthy skin and fat beneath. After its removal the operator took a knife and split the area in half, and he could see, even with his naked eye, that the hard, blackened spot was simply a thickened area of the epidermis. At one spot beneath this little thickened area one could see a minute downgrowth extending into the corium; but it did not extend into the fat.

The full thickness of this area of keratosis, with the surrounding area of skin and fat, was cut off with the knife, a frozen section was made, stained with polychrome methylene blue and mounted on a slide. It was less than five minutes between the time the piece was cut out of the back of the hand, and the time the operator looked through the microscope and saw, clearly stained, every single cell.

In the center of the field was the abnormal spot that one could see with the naked eye. This spot was nothing more than a thickened area of the normal epidermis. Most of the thickness was due to the heaping up of the superficial layers of the skin (cornified epithelial cells). But there was something else abnormal. In the normal skin there are finger-like projections of epithelial cells which extend down into the subepidermal tissue. This allows finger-like prolongations of the subepidermal tissue (papillae) to extend up into the skin and carry the blood vessels and nerve endings. Now, beneath the spot of keratosis, these papillae were wider and longer.

Need for More Accurate Diagnosis

There is a great contrast between the superficial hornified epithelial cells and the deepest cells of the epidermis, which form

*From the Surgical-Pathological Laboratory of Johns Hopkins University.

a definite layer and boundary line, like the Chinese wall, between the two tissues—the epithelial cells of the epidermis and the connective-tissue cells of the corium. These cells are as distinct in forming a line of demarcation as the line on the map separating two states or two countries. If every one of these basal cells is present and there is no break anywhere in their ranks, there is no evidence of cancer or beginning malignant disease.

The section under discussion showed a definite break in the basal-cell zone, and through that break one could see masses of the more superficial epithelial cells growing down into the subepidermal tissue and forming new nests of cells without any basal-cell line of demarcation. This break had occurred in two places, but the cells that had poured through these breaks in the basal-cell dyke looked like the normal cells, in their morphology, and they stained like the normal cell of the epidermis.

There was no question that the epithelial cells had broken through a hole in the fence and were living and growing in a field in which they had no right to be. But we could not tell positively whether these cells were cancer cells or not. Had this lesion been on the lower lip, it would be very vital, to the patient, to be able to tell, by some differential stain, whether the cells that had broken through had become cancer cells or not, because, even for the most minute cancer on the lower lip, the glands —at least those of the chin and jaw—should be removed, as there is no way of telling whether they are involved or not.

But if we could discover a differential stain which would quickly, in the frozen section, differentiate the cancer cell from the cell that is not cancer, we should be able to save this patient with the lesion on the lip an unnecessary operation, if it were not malignant, and give him the utmost protection by the removal of the glands, if the cells were malignant.

The necessity for such a differential stain is just beginning to be appreciated by the medical profession. When the majority of people are ignorant and uninformed, they pay so little attention to the external part that can be seen and felt, or the symptoms which are messages from the internal spot that cannot be seen or felt, that malignant disease is so well established, in many cases, that it is not necessary to use the microscope to make a diagnosis, and when the microscope is required, the cells are so distinctly cancerous that there is no necessity for any differential stain.

Let me briefly describe where we need a differential stain most.

We have removed a lump in a woman's breast. Before the operation there was nothing to be made out but the single small lump that was felt by the patient and by the doctor. It is now in the palm of the operator's hand. He bisects it with the knife. He has had great experience in recognizing cancer from tumors that are not cancer, with the naked eye, just as almost everyone can recognize liver from bacon. But this tumor is so young, it has not the appearance of cancer.

Now a frozen section is made and stained with polychrome methylene blue, and a picture identical with that just described is seen. Glandular tumors are composed of epithelium, parenchyma, surrounded by connective tissue. The basal cell of the glandular epithelium may be broken, and some of the other epithelial cells are growing out into the connective tissue. But this may occur before cancer has really developed. Unless we can make a positive diagnosis of a benign tumor, we must sacrifice the breast, because if it is cancer, the removal of the tumor is not sufficient to effect a cure.

The more women receive correct information in regard to lumps in the breast, the more often will the surgeon meet with this difficulty of having to distinguish a benign tumor from the most curable stage of a malignant tumor.

When married women who have borne children are trained to the protective value of periodic examinations and when more women report the moment they observe something unusual in the monthly period, or its reappearance after the menopause, the more frequently will we have to resort to the microscope to recognize the earliest stage of cancer. We will remove small pieces of the cervix or curette the lumen of the body of the uterus. Experience teaches us that we need a differential stain to help in the diagnosis, to make it more certain.

Sarcoma

Then there is the sarcoma. It has its origin in connective tissue, in soft parts or bone. In the beginning, the cells seen with the microscope are not unlike the cells of granulation tissue. Granulation tissue is the cellular reaction in a healing wound, and

this wound may be open or subcutaneous. Let me illustrate such a case.

A child bruises the shin bone. The immediate effects of the bruise, whether slight or severe, disappear or do not disappear. Then, in a few weeks, there is either a return of discomfort and swelling, or an increase of the symptoms. An x-ray picture is taken, and the plates show bone formation or bone destruction or both. In some of these cases those most experienced in reading roentgenograms are unable to distinguish the malignant tumor, sarcoma, from an inflammatory condition that is not malignant. In order not to lose valuable time and to give the patient the benefit of the immediate removal of a cancer in the bone, if it is present, an operation is performed, a piece of the bone taken out and a frozen section examined. Should the pathologist decide that the lesion is sarcoma, the area of bone involved must be completey removed, even if it necessitates an amputation; while, if it is not malignant, it is unnecessary to remove the involved bone.

I can give other examples: The patient is hoarse and the laryngoscope shows a wart on the vocal cord. The skilled hand of the laryngologist removes a small piece with a special instrument. The section is studied with the microscope. If the decision is that it is cancer, it means removal of the larynx; if not, the larynx is saved.

Earlier Diagnosis Now Made

When I began the practice of surgery and the microscopic study of cancer in the surgical-pathological laboratory of Johns Hopkins University and Hospital, in 1892, under the direction of Drs. Welch and Halsted, we did not need a differential stain, and we rarely needed a microscope. In the first decade, of all the cancers recorded there, more than one-half were hopeless when they came to the hospital for treatment, due to delay. The chances of curing those that could be operated upon, were much less, even in the most favorable situations, than they are today—less than twenty percent. We might say that the mortality from cancer, up to 1920, was appalling, although the surgery at that period was almost miraculous, and rarely was it necessary to use the microscope for recognition.

In the transitional period between 1900 and 1920, in spite of the war, the medical profession, through the help of the public press and the magazines, has carried on a remarkable educational effort. The results are now known. Hopeless cancer has been reduced, in some localities, to less than three percent. The ultimate cures of cancer have increased from less than ten to more than sixty percent. In this earlier and more curable stage, the diagnosis, as a rule, must be made with the microscope, from a frozen section, at the time of the operation, and since 1925, the number of early cases, in which ordinary microscopic diagnosis is difficult, is increasing rapidly. We need a differential stain. There is no reason to feel that we will find, for the earliest period of cancer, when it is strictly a local disease, any diagnostic test, such as we have in the Wassermann reaction in syphilis.

A Differential Stain Essential

This search for a differential stain is a very urgent and practical one. The diagnosis of cancer with the microscope, from frozen sections in the operating room, is a much more difficult one to acquire than the diagnosis from the clinical picture that was acquired by our predecessors of a quarter of a century and longer ago. The simple recognition of malignant disease, which a number of pathologists can easily make without a differential stain, cannot be placed in the operating rooms of the many thousands of hospitals in this world, because it requires long, expensive training. Granted that we could train a sufficient number of pathologists to man the hospitals, there is an economic side—it adds greatly to the expense of the hospital. No one today can dispute the fact that the number of surgical pathologists necessary for the hospitals who can afford to pay for their services is still insufficient.

I trust that I have clearly presented the evidence and the argument for the necessity for research which will simplify the diagnosis of the cancer cell in the malignant tumor, in its earliest and most curable stage. To make such a research on a broad and properly organized basis will, at the same time, lead to the training of efficient surgical pathologists, so that if the search fails in finding the differential stain, it will at least succeed in furnishing the hospitals of this country the pathologists especially skilled in diagnosing frozen sections in the operating room.

Through the generosity of Mr. Francis

P. Garvan, president of the Chemical Foundation, the surgical-pathological laboratory of Johns Hopkins University is being enlarged and has already started the training of a small group of medical students, and within a few months the research for a differential stain will begin.

904 N. Charles St.

Colloidal Mercury Sulphide-Hille

A Preliminary Report of Clinical Findings

By Leo C. DuBois, M.D., *Chicago*

Attending Urologist, American Hospital

MERCURY always has been and still is the most reliable drug in the treatment of syphilis. Arsenic, bismuth and various other agents push their way to the foreground from time to time, relegating mercury to a position of secondary importance, but always, sooner or later, mercury again steps to the front as THE dependable drug for this disease.

Then why are we always looking for a new drug? Primarily because mercury, in the forms and combinations heretofore available, has certan disadvantages in use and treatment. Its effect, especially in the primary and early secondary manifestations, is too slow, particularly from a symptomatic standpoint; the intramuscular injection is too painful and absorption too uncertain, while the intravenous method presents many obvious and well known objections.

The advantages of the colloidal form of a heavy metal are too well known to warrant reiteration, so the possibilities of colloidal mercury in the treatment of syphilis, as well as other conditions, seemed to make it well worth our while to test it clinically.

Colloidal Mercury Sulphide-Hille has already been thoroughly studied, in laboratory and animal experimentation, for toxicity, maximum tolerated and minimum lethal dosage in rabbits ("The Toxicity of the Colloidal Sulphides of Some Heavy Metals for Rabbits," by G. Earle Wakerlin, Ph.D., and Charles Eiseman, M.S., Department of Physiology, University of Chicago—Abstracted in Clin. Med. and Surg., Aug., 1928, p. 606). "The Therapeutic Action of Colloidal Mercury Sulphide-Hille in Syphilis Experimentally Produced in Rabbits," by Dr. Wakerlin, published in the *Archives of Dermatology and Syphilology*, June, 1929, draws the following conclusions:

Colloidal Mercury Sulphide-Hille, in the dosages employed, possesses excellent healing and definite sterilizing properties in experimental rabbit syphilis. Its potency is superior to that of other known mercurials. It is without deleterious effect on the tissues at the site of intravenous injection, and is apparently free from properties responsible for the production of anaphylaxis. Because of its low toxicity and its very effective healing action and definite sterilizing properties in experimental rabbit syphilis, Colloidal Mercury Sulphide-Hille should receive an adequate experimental study in the therapeusis of syphilis in man.

Case Reports

No. 1: H. B.; male; age 25; presented himself on February 7, 1929, with penile chancre, darkfield-positive; inguinal glands enlarged and a faint macular rash over the body.

Treatment: Colloidal Mercury Sulphide-Hille, 5 cc., intravenously, on February 11, and three times a week until May 6, 3 cc. being given at a dose after the first week. One month of rest was given and a Wassermann test taken June 7.

Results: On February 13 the sore was one-half the original size. On February 15 it was entirely healed and the rash had disappeared. On February 20 the infiltration at the base was practically gone, the glands not palpable and no symptoms of any kind remained. March 1, infiltration at the base was entirely gone and no signs or symptoms of any kind appeared thereafter. On June 7 the Wassermann and Kahn tests were negative.

No. 2: M. S.; female; age 22; referred with a history of a cervical sore one month previously; first seen by me on January 28, 1929, when she presented a macular rash on the body; severe, papular rash over the face, neck and entire scalp; enlarged and painful glands of the scalp, postcervical, axillary, chest and inguinal chains; marked malaise; coryza; severe systemic toxemia; Wassermann and Kahn tests 4 plus—a very unusual, severe, toxic form of syphilis.

Treatment: Colloidal Mercury Sulphide-Hille, intravenously, 5 cc. on January 30; 10 cc. February 1, with 10 drops by mouth (1 percent), four times a day; February 4, 6 and 8, 3 cc., intravenously; thereafter 2 cc., intramuscularly, three times a week until March 22, discontinuing the drug by mouth after the second week.

Results: February 1, the rash was fading; the glandular soreness was gone, though the glands were still enlarged. February 4, the macular rash on the head was gone; body rash fading; glands

much smaller. February 11, rash entirely gone; glands normal in size; all symptoms had disappeared and did not return at any time. April 6, after one month without treatment, the Wassermann and Kahn tests were negative.

No. 3: Harry B.; referred to me March 7, 1929, with ulceration of the soft palate (left) about ¾ inch in diameter; positive culture for Vincent's angina; Wassermann and Kahn tests, 4 plus; a mixed infection, severe toxemia, great local inflammation and serious symptoms.

Treatment: Neoarsphenamine, 0.45 Gm. on March 7 and 9. On March 13 no improvement was manifest and the patient was unable to swallow solid food, on account of marked edema of the soft palate. On March 13, 15, 18, 20, Colloidal Mercury Sulphide-Hille, 5 cc., was given, intravenously; thereafter 3 cc., three times a week, until May 6, 1929; then one month of rest.

Results: On March 15, the sore was much smaller, the swelling less, and the patient was able to eat solid food with ease. March 20, sore entirely healed; no symptoms of any kind and none appeared thereafter. On July 9, the Wassermann and Kahn tests were negative.

No. 4: Mrs. B.; treated for two years with neoarsphenamine and mercury; Wassermann and Kahn tests persistently 4 plus.

Treatment: Colloidal Mercury Sulphide-Hille, 2 cc., intramuscularly, once a week for 12 treatments. After a month of rest the Wassermann and Kahn tests were 3 plus. Since a 4 plus test may indicate 4 or 4000 plus, a reduction to 3 plus indicated more improvement than would be suggested by comparison.

No. 5: A case of tertiary syphilis, declared hopeless by several syphilologists, was treated in the hope of performing a "miracle," and slight symptomatic relief was obtained, but no permanent improvement. This case was complicated by other systemic disease, was finally operated upon, and is still hopeless.

Several patients who had been under treatment with other forms of mercury, were given intramuscular injections of Colloidal Mercury Sulphide-Hille and were unanimous in stating that there was no pain at the time of injection or thereafter, and no formation of lumps at the sites of injection.

Two cases of acute prostatitis and one of acute epididymitis were treated with two intravenous injections a week of 3 cc. of Colloidal Mercury Sulphide-Hille, with recovery to normal within two weeks in each case, no other treatment being given.

X-ray pictures of the buttocks, in two cases, following continuous treatment for three months, reveal complete absorption of the intramuscular injections in four days.

Analysis of Cases

Type 1: Primary Syphilis. The striking features of this type are: The rapidity of healing of the sore (complete in one week, after three treatments); disappearance of infiltration in ten days; and complete symptomatic recovery within the same time, comparing most favorably with neoarsphenamine as to symptomatic cure.

Type 2: Toxic Syphilis, secondary. This case was one of a most unusual type, with acute coryza, enlarged and very painful glands, and systemic toxemia, with complete disappearance of all symptoms in one week. The dosage in this case was larger at the start, with the stomatitis which is to be expected following the use of a rapidly and completely absorbed mercurial preparation. The stomatitis subsided under smaller dosage, with intramuscular administration.

Type 3: This case contrasts the lack of results following the administration of neoarsphenamine, in a case of primary syphilis with complicating Vincent's angina, with rapidity of healing following Colloidal Mercury Sulphide-Hille; although one is unable definitely to deny a delayed effect of the arsphenamine. However, 48 hours after the second dose of arsphenamine, there was practically no improvement; while 24 hours after the first injection of Colloidal Mercury Sulphide-Hille, improvement was remarkable; four days later the patient was practically normal; and in one week, entirely healed.

Conclusions

1.—Colloidal Mercury Sulphide-Hille, in the treatment of primary and early secondary syphilis, in the cases treated, is the most rapidly acting agent, for the disappearance of symptoms and surface manifestations of active syphilis, which I have ever employed. Complete disappearance of the primary sore took place in two cases within one week, and of toxic secondaries in the same period, with no return at any time.

2.—In very small dosage (2 cc., once a week for 12 doses), it changed a persistent 4 plus to a 3 plus Wassermann reaction, after other forms of treatment, given for two years, had had no effect.

3.—The intravenous administration of this drug does not cause any local reaction nor affect the veins in any way, and it may, apparently, be given over a long period without causing any venous lesions.

4.—Intramuscular injection is absolutely painless, both at the time of injection and thereafter, and the x-rays reveal complete absorption of the mercury, four days after injection. No abscesses, no induration and no pocketing occurred in any case, one of which received injections continuously, over a period of six months, without rest.

5.—I realize that this series is too small, numerically, to constitute anything like a final analysis; but the results obtained in the various types of cases are highly impressive and demand widespread investigation and clinical use of this new and, in my opinion, very valuable form of the oldest and most dependable drug in the treatment of syphilis, in order to form a true estimate of its therapeutic possibilities.

104 S. Michigan Ave.

Some Aspects of Allergy

By WILLIAM G. PARKER, M.D., *Mt. Vernon, Illinois*

BACK of the beliefs of any period there is usually some element of truth. Such beliefs are based upon observations which, in themselves, may have been misleading, the things observed being effects rather than causes. Additional facts explaining the mechanisms involved lead to a solution of the problem.

Now we are beginning to be concerned with new explanations of old observations. Our medical forefathers, noting many things they could not well explain, attributed them to humors in the blood A number of terms, such as anaphylaxis, allergy, atopy, protein sensitization and specific hypersensitiveness are in use more or less interchangeably today, to indicate a peculiar susceptibility to certain biochemical reactions that cause illness in animals and man.

In order to appreciate the significance of these clinical states one should have some understanding of the factors involved. This includes a knowledge of terms, as well as of the changes which occur.

ANAPHYLAXIS AND ALLERGY

Antigens are protein substances which, when introduced into the body, especially parenterally, cause the formation of antibodies. The term anaphylaxis should be used to denote proved antigen-antibody reactions. Allergy is a broader term which includes anaphylaxis as well as conditions of altered reactivity, in which an antigen-antibody reaction has not been demonstrated, since many reactions are not due to protein substances. It has been stated that animals are sensitive to antigenic substances only. Human beings, however, may be sensitized to many substances, both protein and nonprotein. Among these are listed foods, drugs, hair, feathers, volatile oils, vapors, smoke, pollens, sera, bacteria, insects and external physical agents such as heat and cold, sunlight and mechanical irritation. Duke remarks that these facts may seem strange, but that they are no more strange than were the early studies in bacteriology and immunity, in the days of their development[1].

Theobald Smith found, in 1904, while working with guinea pigs for the purpose of standardizing diphtheria antitoxin, that pigs inoculated with serum acquired a specific hypersensitiveness to subsequent inoculations given several days or weeks later. This he found to be due to the horse serum and not to the antitoxic content of the serum. Rosenau and Anderson, two years later, reported that guinea pigs could be given first doses of serum without harm at the time of injection. The hypersensitiveness which followed injections of as little as 0.004 cc., and in one instance as little as 0.000001 cc., was so pronounced that subsequent doses, at intervels of ten days, were likely to prove fatal, even though very small doses were given. These were typical anaphylactic phenomena.

In animals, sensitiveness once established tends to become permanent and can be transmitted to the young, in whom, however, it is not lasting. The inheritance is through the mother and is of the same type. In human beings, sensitiveness to many nonproteins may exist and the inheritance be through the father as well as the mother, and nonspecific as to the sensitizing substance. Balyeat[2] has recently shown that in man heredity is an important factor. By means of genealogic studies of allergic individuals he found that the "transmission of the ability to become specifically sensitive

1.—Duke, W. W.: Asthma, Hay Fever, Urticaria and Allied Manifestations of Allergy. C. V. Mosby Co., 1926. The reader is referred to this excellent text for more detailed information.

2.—Balyeat, Ray M.: The Hereditary Factor in Allergic Diseases, With Special Reference to the General Health and Mental Activity of Allergic Patients. *Am. Jour. Med. Sciences*, Sept., 1928.

REACTIONS DUE TO LOCAL ABSORPTION
(Contact Reactions)

EXCITING CAUSE	SITE OF ABSORPTION	LESION INDUCED
Chemicals (Including house dust, feathers, hair, dander, volatile oils, perfumes, etc.)	Skin	Acute dermatitis, chronic dermatitis (eczema), urticaria (intracutaneous injection).
	Upper Respiratory Mucosa	Sneezing, vasomotor rhinitis (?), asthma, perennial hay fever.
Pollens	Upper Respiratory and Conjunctival Mucosa	Congestion and symptoms of hay fever (annual).
	Skin	Dermatitis.

REACTIONS DUE TO GENERAL ABSORPTION
(Systemic Absorption)

Serums	Skin and subcutaneous tissues and intravenously	Urticaria Shock Asthma Angioneurotic edema (?) Serum sickness
Bacteria (in general)	Focal Infections	Nonsuppurative inflammations (rheumatism, endocrine irritations—thyroidism, etc.) Anemia
Tubercle Bacillus	Primary Lesion	Noninflammatory proliferation of fixed cells (tubercle formation)
	Reinfections	Allergic response (inflammation and exudation, increase in reticulum; the autotuberculin reaction of Pottenger[5])
Parasites (Certain taeniae)	Intestines and elsewhere	Asthma Urticaria

5.—Pottenger, F. M.: Factors Fundamental to Healing in Tuberculosis, *American Review of Tuberculosis*, Vol. xvii, No. 5, May, 1928.

follows Mendel's law and that the nature of the inheritance is as a single dominant factor. . . . The ability to become sensitive is transmitted from one generation to another, but not the specific state." He further shows that "the extent to which an individual is exposed (clinically) to any given protein has much to do with determining whether or not a sensitivity to that particular protein will develop".

Many disease states are merely chemical and biologic *reactions* to infections or other foreign substances, the rapidity of onset depending upon the speed with which fighting equipment is provided. In natural hypersensitiveness, antibodies are already present and reactions in this condition are usually rapid and severe. DeLee, of Chicago, reported the case of one of his patients who was given 1 cc. of hemostatic serum for a postpartum oozing. Death occurred within one minute after the injection was given. It was learned that the patient had been subject to attacks of asthma when about horses.

TRANSFERENCE AND DELAYED REACTION

That sensitiveness may be transferred in human beings as it is in guinea pigs, is shown by a case reported by Ramirez[3]. The patient, a woman suffering from pernicious anemia, received a blood transfusion of 600 cc. Two weeks later she went for a ride in a horse-drawn carriage. Immediately upon entering the carriage she experienced difficulty in breathing which, within five minutes, developed into a severe attack of asthma. Skin tests for many substances were negative but she reacted when tested with

3.—Ramirez, Maximilian: Horse Asthma Following Blood Transfusion, *Jour. Am. Med. Assn.*, 1919, lxxiii, 984.

dilute extract of horse dander. The donor also reacted to horse dander and proved to be sensitive to horses. The transferred sensitiveness disappeared within a few weeks.

Serum sickness may occur in persons who have not received previous doses of sensitizing serum, following the first injection. The reaction does not take place at once, but is delayed several days, as a rule. The mechanism seems to be about as follows: Antibodies begin to form, following the injection of serum, and accumulate in sufficient quantity to react with some remaining traces of serum in the body. The reaction is seldom fatal and comes on slowly, in the presence of a diminishing amount of antigen (serum being eliminated).

The amount of serum administered has a bearing upon the occurrence of serum sickness. Duke quotes Weaver to the effect that only 10 percent of individuals have serum sickness when less than 10 cc. are used, while over 75 percent have symptoms after the use of quantities greater than 10 cc.

Most of the foreign albumins are removed in the manufacture of diphtheria antitoxin, through the precipitation and re-dissolving of the antitoxin-bearing globulins, so that relatively large doses of this product give comparatively little trouble, compared with some of the other sera, especially tetanus and scarlet fever antitoxins. This is my own experience.

Experiments to determine the site of reaction seem to indicate that this takes place in the *tissues*. Animals already sensitized, which have been bled and transfused, so that practically all their blood has been replaced, still react actively to their specific antigens. If the tissues are the site of allergic reactions, we have in such a fact some explanation of the varying character of the lesions and symptoms induced.

In their earlier work, Rosenau and Anderson succeeded in sensitizing animals to bacterial extracts, using *B. coli*, tubercle bacilli, typhoid and anthrax, and produced serum-like reactions upon reinjecting the appropriate antigens or extracts. Duke points out that, while serum-like reactions do occur in these cases, the usual type of reaction is of the inflammatory type, resembling the *tuberculin reaction*.

Desensitization

Sensitive animals may be rendered temporarily immune to otherwise fatal doses of serum, through the repeated administration of extremely small (sublethal) doses of an appropriate antigen. Besredka[4] termed this, antianaphylaxis. The condition may be rapidly induced, but lasts only two or three weeks. ". . . . Through the use of infinitesimal doses, given intravenously at ten-minute intervals and increased rapidly, Besredka promptly conferred a degree of tolerance upon sensitized animals which would enable them to withstand from one hundred to one thousand times a lethal dose. This condition of antianaphylaxis can be established so rapidly that when a lethal dose of serum is given subcutaneously, or even when a lethal dose is given intravenously *with great slowness* (Mita), the animal is often desensitized before the entire dose gains entry to the circulation, and in this way is enabled to tolerate the entire dose"[1].

Types of Reaction

In general it may be said that reactions vary with the incidence of the exciting agent, the extent of exposure (mass effect), whether the sensitiveness is natural or gradually acquired, and other related factors that appear in each individual case. The accompanying brief outline shows the relation of causative factor, site of absorption and lesion produced.

The body tissues constitute an environment in which certain harmonious processes go on in health. The introduction of incompatible elements brings about a synthesis of substances of unsatisfied valencies, so to speak, capable of reacting with additional portions of the specfic foreign element when brought into contact with it. Such reactions may be of some ultimate benefit, as in the various immunity reactions; but their violence may make the reverse quite true.

Inflammatory and exudative phenomena seem to characterize most allergic reactions. This is noted in many clinical conditions. The acute lesions known as hives are exudative. Continuing or recurring, they result in a dermatitis. Eczemas result from more intense or prolonged engorgement of the derma, with resulting thickening and interference with the nerve endings, interference with the sebaceous glands, finally oozing, scaling, fissuring and perhaps infection. The subjective symptoms are explained by the pathologic changes present.

4.—Besredka, A.: Anaphylaxis and Antianaphylaxis, C. V. Mosby Co., St. Louis, 1919.

The sudden reactions which characterize certain allergic states are usually controlled by agents which induce marked vasoconstriction, stopping the exudative tendency. The action of epinephrin solution in asthma is an example of this. Likewise may be mentioned its use in the nitroid crises, Herxheimer reactions and serous apoplexy of Milan, which sometimes follow the use of spirocheticidal arsenicals.

Allergy in Tuberculosis

Pottenger, in the article previously referred to, mentions the vast amount of pulmonary exudate which is thrown out when tubercle reinfection occurs, with increase in the amount of sputum, signs of dullness, extension of the shadow in x-ray plates, as well as increase in other ordinary signs and symptoms. The extent of such findings is out of proportion with the actual tuberculous involvement, and may later on almost completely disappear. I have noted such changes myself and when such clearing occurred felt that my technic in physical diagnosis must have been faulty. Hollos[6], in his recent book, also describes this phenomenon following the use of specific treatment in tuberculosis. He also stresses the reactions following reinfections and their effects upon the endocrine system and sympathetic nervous system, under the term "tuberculous intoxications." Many persons who may have only minor lesions may become hypersensitive, due to small reinfections, and suffer from most varied symptoms and disorders, among which fatigue and symptoms of neurasthenic type predominate.

Some years ago Dr. E. H. Ochsner, of Chicago, wrote a number of articles attributing such symptoms to what he conceived to be "fatigue poisons." Since tuberculous infection, in some degree, seems to be almost universal in the human race, it would seem that the explanation of such symptoms on the basis of allergic reaction is more likely to be correct. Pottenger stresses the allergic factor in tuberculosis, and Head[7], of Minneapolis, in his book on concealed tuberculosis, typically describes the symptomatology and proves that these patients react specifically to tests for tuberculosis.

Incidental mention has been made of asthma, the so-called idiopathic forms of which are allergic in nature, and brought on by contact with such substances as dander, house dust, certain ingredients of cosmetics, hair, feathers, and other sensitizing substances, as well as the internal use of various foods; likewise the attacks of seasonal hay fever due to pollens. No extensive discussion of this one phase of allergy can be given in this paper, all that is intended being to call attention to these forms of allergic reaction.

The studies of Balyeat, already mentioned, indicate that *migraine* is an allergic manifestation. He shows that heredity is a marked factor and that eczema and migraine are interchangeable with hay fever and asthma. The symptoms of migraine—localized headache, vomiting, and other symptoms of localized cerebral pressure—suggest the exudative phenomena of allergy.

Practical Considerations

The diagnosis of allergy depends upon a reasonable acquaintance with its manifestations. The case history yields the most information and should be minutely taken. Specific tests such as scratch inoculations and intracutaneous injections of test materials vary a great deal in value. They are usually specific in conditions due to direct contact or to parenteral absorption (pollen sensitization and substances acting locally, and in the case of serum allergy), but tests with food substances are not so reliable. This is due to the fact that foods undergo changes during digestion and the products of such changes may be the sensitizing agents, rather than the original food itself. In my own experience a negative food test does not exclude that food from suspicion at all. If one gets a positive test, very well. I think the intracutaneous test is the more definite.

From certain clinical experiences which will be referred to again, I believe that sensitization to food may become established through absorption from the intestine when the mucous membrane is not intact. Lesions of the mucosa incident to enteritis and other conditions which render the intestinal wall more permeable, or which interfere with the proper digestion of food, may facilitate the absorption of incompletely-split substances in reaction-provoking quantities. Although such absorption be from the digestive tract, it really amounts to parenteral absorption, proteins so absorbed being "foreign" in the same sense that they are for-

6.—Hollos, M.D., Joseph: The Tuberculous Intoxications, A Clinical Study, E. & S. Livingstone, Edinburgh.

7.—Head: Concealed Tuberculosis, or The Tired Sickness.

eign (unchanged) when absorbed subcutaneously. This is no doubt an old observation partly explaining the term "intestinal toxemia" and is an instance of the conceptions mentioned in the first paragraph of this paper.

Illustrative Cases

A few typical cases of both contact and general reactions which have come under my observation are given to show the clinical and diagnostic significance of these phases of allergy.

Two cases of dermatitis are first submitted, because of their totally different etiology.

Case 1.—A young matron presented herself with the following history: A blotchy inflammation had appeared upon the face, that part of the chest left uncovered by a low-neck dress and upon the forearms. It had persisted, in spite of treatment, for several months. A well known dermatologist had prescribed a diet, but without effect. Lotions and various other treatments had been ineffectual. There were no lesions upon other parts of the body and the general health was good.

Because of the peculiar location of the trouble, a contact reaction was suspected, since an internal cause would have been prone to cause lesions upon the thinner skin of covered parts, without any tendency to symmetry. Accordingly she was asked to refrain temporarily from the use of cold cream, all lotions, scented soaps and perfumes, including talcum and other powders. The inflammation was gone within a week.

As the patient used much cold cream she was then allowed to return to the use of this one article, whereupon the inflammation recurred. A different brand of cream was substituted, without any return of the trouble, demonstrating that some ingredient of this particular cream was responsible.

Case 2.—A young man presented himself with a somewhat similar inflammation, involving the face and neck, as well as a large patch upon the breast. His scalp had become involved and the hair was full of small scales that fell upon his clothing. These scales were found to come from the skin about the hair follicles, and when brushed loose could be slid up the hair like a button on a string. The skin lesions had a tendency to resemble the red papules of urticaria.

The history disclosed the following circumstances: For several weeks he had taken his noon meal at a small lunch stand where "hot dogs" and chili were prominently served. Some time after beginning to eat these articles he had symptoms of gastric irritation, then a rather obstinate constipation and a tired feeling. The dermatitis then appeared and persisted, although he consulted physicians who prescribed various ointments and lotions and gave some kind of hypodermic medication.

Because of the location of the lesions, upon unexposed as well as exposed surfaces with no typical distribution, the gastric disturbances and symptoms of "toxemia," the condition was considered to be due to the patient's diet. No skin tests were made, as it was thought that some irritating condiment in the food was responsible. The diet was radically changed, leaving out the particular articles already mentioned, and the patient was given a daily purgative dose of sodium phosphate (plain granular). Ammoniated mercury ointment was used on the scalp, for the penetrating and softening effect of the lanoline base and the antiseptic action of the mercury. Improvement was rapid and the dermatitis had almost disappeared within a week. Subsequent treatment was directed toward the gastrointestinal tract, with continued improvement.

Case 3.—A brick mason, who had followed his trade for several years, presented himself with an acute dermatitis of the face, arms and ankles. The location of the lesions indicated some contact with an irritant, probably contained in dust from materials he handled. Several months before he had had a similar attack which soon cleared up. Questioning elicited the fact that the attack had followed building a fireplace in which a colored mortar was used. The present attack was apparently due to the same substance.

The nature of specific contact dermatitis was explained to him, with the information that he would probably be unable to handle that kind of mortar again without irritation. As there were numerous furuncles about the hairs on his arms, some were opened, moist dressings of chloramine-T applied and *manganese butyrate* administered intramuscularly. The process cleared up very promptly after the second injection.

Some weeks later he again came for treatment of dermatitis of the arms, asking for a repetition of the injections. As there were no furuncles present this time, it was explained to him that the treatment would probably do no good. An injection was administered however, and was followed by rapid improvement. Whether manganese butyrate had any specific effect upon the sensitization, or upon aiding in relieving the inflammation by increasing resistance to infection, remains to be learned from further observation of this case.

Case 4.—An elderly lady had urticaria wherever exposed to direct sunlight. The specificity of this was tested many times.

Case 5.—A young married woman began to have a nasal irritation characterized by congestion and sneezing. There was no nasal abnormality except a slightly deviated septum. The beginning of the trouble was traced to the bringing of a new rug into the house. The patient was free from symptoms for three weeks while not near this rug, and symptoms recurred when she was in the house with it. After several months, tolerance was established or the rug lost its irritating qualities, for the patient gradually stopped sneezing.

Case 6.—A nurse who was sensitive to dog and horse dander was placed in a patient's home where a dog was a household pet. Within 24 hours she was dyspneic and cyanotic, with asthma which subsided when she left the household. This represents a different type of reaction, although the mode of absorption was by contact (parenteral).

Case 7.—This case illustrates what may occur when natural sensitiveness exists. During an epidemic of diphtheria several years ago, the

children at the public school were given immunizing doses of diphtheria antitoxin by a group of local physicians. One of the physicians gave his own daughter, a girl of 12, an immunizing injection. She presently became asthmatic and died within an hour. She had been somewhat subject to asthma, and was doubtless sensitive to horses.

Case 8.—A three months old infant developed an acute eczema rubrum covering the entire body. As it was breast fed, the mother's milk was examined and found to contain 9 percent of fat. The baby was given an ounce of water before each feeding, to help fill the stomach, and then allowed only about half the usual feeding. This method of reducing the fat intake, and a soothing ointment, brought about a rapid disappearance of the eczema.

Case 9.—A young farmer of excellent physique had been troubled with an asthmatic bronchitis for several months. The asthmatic feature was always worse when there was any increase in the bronchitis. This was regarded as a case of bacterial sensitization, the same bacteria causing both conditions. A mixed catarrhal vaccine was administered in increasing doses, weekly for 15 weeks, with a complete disappearance of the bronchitis and asthma, neither of which has returned during the past seven years.

Case 10.—A young boy had acute attacks of asthma, always precipitated by colds and recurring attacks of mild bronchitis. He also had a dry eczema of the leg. Treatment was carried out as in case 9, eleven injections being given, with subsidence of both asthma and eczema. A year later there was a mild recurrence of the asthma but not the eczema.

Case 11.—A woman with pernicious anemia was given a series of blood transfusions from different donors. A certain donor's blood, although compatible, as shown by cross matching, always caused reactions. Immediately on starting the transfusion (by the direct method) the patient's eyes would be closed by a rapid swelling of the lids. This swelling was of an edematous nature.

Case 12.—A farmer ate part of a papaw which he found. Within an hour he was suffering acutely from an attack of griping in the stomach and intestines, vomiting and purging, with itching and burning of the skin from an intense urticarial eruption covering the entire body. He recalled that he had had a similar attack, 20 years before, from eating papaw.

Case 13.—A young girl had recurring attacks of urticaria. Her general health was excellent. A careful consideration of her diet showed that she ate many eggs, and as it was blackberry season she had been eating fresh berries freely. This combination of foods was discontinued, with relief from the urticaria.

Case 14.—The patient was a young married woman who was anemic and amenorrheic. During childhood she had been taken out of school several times because of "nervous breakdown." She had never been able to stand up under strain. Ordinary house work was exhausting. An aunt who lived with the family had died of tuberculosis when the patient was a child.

The patient was 31 years old when seen by me. She had a slight continuous fever (99° to 100°F.), tired out easily, and had various aches and pains in different parts of the body. She reacted positively to tuberculin. Her chest was negative on physical examination. An x-ray examination of the chest showed many small calcified areas and glands, and a few small areas where the process was young. She was treated by rest, intravenous injections of iron cacodylate, tonics and also immune blood dilutions, as described by Hollos[6]. She gained weight and strength, and finally had a normal temperature. There was a tendency to relapse in symptoms whenever treatment was discontinued a few months, anemia and weakness being the chief symptoms, although the patient retained weight well.

This case, with physical findings so slight that only x-ray examination disclosed them, is a fair sample of the effects of continual reactions to slight infections, and the history from childhood is typical. The debility from intoxication is out of proportion to the physical involvement.

Case 15.—A child, aged 2½ years, was seen in the country one day in August. The patient, who had been sick two days, appeared comatose; respirations were very asthmatic and fast; typical rales were heard all over the chest; the temperature was 102° F.

While observing the child and wondering what could be the cause of the disturbance, a large cat walked in at the unscreened doorway, crossed the room, hopped upon a chair where a water bucket was set, and upset the nearly empty bucket. It occurred to me that the members of such a household would probably be infested with ascaris lumbricoides Accordingly santonin and calomel were administered. The child passed 39 worms and was relieved of all symptoms.

Two similar cases were seen within the next few months, one in an infant less than a year old.

Case 16.—This case illustrates many of the phases of allergy, and shows to what distressing extremes it may reduce a patient. Balyeat's dictum that allergy is markedly hereditary is confirmed by the fact that a positive family history was obtained in practically all the cases already described, and in the present instance there was a positive history and the patient had had small patches of eczema at times for several years.

In October he began to have a generalized urticaria. Food was suspected and skin tests for many foods were made, with negative results in every instance. That an internal condition acutely sensitized the skin was shown by the development of eczematous patches wherever there was any friction, such as at the side of the neck where the edge of a starched collar rubbed; behind the ears where the bows of spectacles rested; over the ischial tuberosities where the body weight was borne in sitting; on the arms where they rested upon chair-arm or desk, etc. Only the face, hands and feet were uninvolved at this time.

The skin began to be thickened and discolored and itched and burned continuously, preventing rest or sleep. The ears became swollen and fiery red. Small scales filled the hair, which became dry and began to fall out. A large patch of dry eczema that had been developing in the popliteal space became moist and resisted all forms of treatment. The patient lost weight, was pale, felt very tired and old; there was a

bitter taste in the mouth; the tongue was coated brown and the bowels could hardly be moved by large doses of magnesium sulphate. At times eating was followed by edema of the face and buccal membranes. Although an effort was made to learn just what foods were followed by this edema, the starvation involved in experimenting with foods was withstood poorly, as the patient was much reduced already. Further skin tests were out of the question, as the skin was, by now, so thick and ecchymotic, that a reaction could not have been distinguished.

Physical collapse came late in January and the patient spent the next four months in bed in an extremely serious condition, unable to feed himself, because the skin was so thickened and crusted that he could not bend his arms sufficiently. He was unable to lie in any position except upon the back, because the flesh of the other body surfaces was too sore to permit resting upon it. The entire skin began to shed scales, leaving myriads of raw points which itched and burned terribly, and became infected, resulting in hundreds of small furuncles about the bases of the hairs on the limbs. There was a tremenduous enlargement of the regional lymph glands.

At this time the white blood count was 14,000; eosinophiles, 18 percent; basal metabolic rate, plus 24; Wassermann test, negative; blood calcium reported high but disregarded because of some doubt as to the technic. The skin circulation was poor; the feet were cold and cyanotic; the body surface was discolored from the intense congestion. None of the various kinds of treatment had had any beneficial effect.

While the patient was in a university hospital, under the care of a dermatologist, he was given fruit juices very freely and grew rapidly worse. A portion of grape fruit caused a rapid engorgement of the skin, particularly of the ears which swelled enormously and oozed an irritating serous fluid which produced eczematous areas wherever it dried. Thus citrus fruits were fixed upon as trouble producers and eliminated from the diet. Cheese had been suspected, as it was thought to be the cause of some sudden edemas at various times, and had been eaten freely by the patient before the onset of the urticaria. It was also eliminated from the diet.

The patient's condition remained unimproved in general, and he returned two months later to another hospital, where a three-weeks' stay was without appreciable change. The basal metabolic rate, after an intensive course of sedatives, was minus 10, and the eosinophilia was 14 percent. It seemed that the sensitization was passing, as there could be seen a few areas where a suggestion of normal skin color might be thought to exist, but the entire skin was so thick and inflexible that the patient was thoroughly disabled. Flakes of gangrenous intestinal mucosa were passed in the stools, which were very putrid. The abdomen was distended very much with gas at times.

This distressing case was finally brought to a close after eight months of suffering. Thorough purgation daily, for weeks, was instituted, using large doses of granular phosphate of soda, as well as alkaline emulsions of mineral oil and colonic irrigations. In order to reduce the dry, thick skin, the entire body was exposed to the x-rays, using about one-fourth of an erythema dose weekly. This gave much relief from the itching and did away with the scaling, so that ointments, such as the compound resorcin formula and others similar, were no longer required. Persistent spots, especially over extensor surfaces, were hard to clear up completely, but eventually healed.

Of all the sedatives used, sodium bromide, in large doses, gave the most satisfactory results and was the least depressing. The only articles excluded from the diet were cheese and "acid" fruits, as these were found to cause edematous swelling of the face, buccal membranes, etc., even in small amounts. The raying of the skin, thorough alimentary elimination and consistent local treatment finally restored the patient from a living hell into the springtime of a new world. I say this from first hand knowledge for I was the patient.

Case 17.—A middle-aged lady, wife of a physician, sustained an abrasion of the shin which became infected. When seen by me some weeks later the entire body surface was involved. The skin was red and swollen, and appeared as though it had been boiled. The entire surface was exfoliating and the patient was in much distress. A textbook description of dermatitis exfoliativa would have fitted the case nicely. Staphylococcus sensitization was suspected and an appropriate immunogen administered, with extremely satisfactory results.

Summary and Conclusions

Certain aspects only of allergy have been discussed and some cases described. Ordinary hay-fever has not been mentioned, although it is a common manifestation. The subject is too extensive to warrant its discussion here.

The biologic aspects should be borne in mind, so that intelligent caution may be employed in the use of therapeutic serums. It should be apparent that the indiscriminate use of serums is to be discouraged, as sensitization may be established and make future treatments unpleasant or dangerous. This should not adversely influence the physician in the use of such remedies when there is real need, always making inquiry however, concerning any family characteristics, such as asthma and other allergic manifestations. He should know the technic of desensitization, and remember that, although blood groups may seem compatible, blood transfusion is safer if some preliminary injections are made to determine sensitization.

Studies of allergy constitute some of the most important as well as fascinating advances of modern medicine. A wider knowledge of such conditions will make one a better and safer physician.

428-29 Jefferson Building.

The Injection Treatment of Hemorrhoids and Rectal Prolapse

(An Improved Technic)

By Manuel G. Spiesman, M.D., *Chicago, Ill.*

THE same enthusiastic reception given to the injection treatment of varicose veins is being accorded the injection treatment of hemorrhoids. Most favorable remarks and comments from eminent surgeons and proctologists, in the United States, England, Germany, France, Norway and South America, based on extensive clinical experience, are continuing to appear in the medical literature. A bibliography of some of these is appended.

Arthur S. Morley, F.R.C.S.,[1] of St. Mark's, London, an institution devoted exclusively to the treatment of rectal diseases, in his book "Hemorrhoids" (1923), wrote of this treatment:

"I am convinced that operation is rarely necessary and that the condition may be dealt with as satisfactorily and as safely by the method of interstitial injections, thereby saving the patient from laying up and sparing him considerable pain, inconvenience and expense.

"To revert to my own experiences at St. Mark's Hospital and elsewhere, extended experience has given me ever-increasing confidence in the treatment, and I think it would be an underestimate to say that I have treated 2000 cases at St. Mark's Hospital itself, and between 1000 to 1500 cases in private.

"That my results from injection at St. Mark's Hospital did not compare unfavorably with those of my colleagues there who operated upon their cases is shown, I think, by the fact that no less than three of the house surgeons, who had ample opportunities of watching both methods of treatment and of comparing them, are now enthusiastic practisers of the treatment by injection, whilst one of them came to me to have his own hemorrhoids injected."

Histopathology

A hemorrhoid is a plexus of many small, dilated, valveless veins, surrounded by indurated connective tissue and covered by mucous membrane.

Injecting an irritant substance around such a plexus will excite a productive inflammation in the adventitia of the vein and in the tissue immediately surrounding it. This results in a gradual development of phlebitis and periphlebitis. The progressive inflammatory changes that follow induce a steady diminution of the calibre of the vein until complete obliteration results. The venules are no longer distended with blood and, as organization proceeds, the hemorrhoid is converted into a fibrous mass of tissue. Thus the hemorrhoid—a plexus of small dilated venules, distended with blood—becomes converted into a solid, non-vascular mass and obliteration is accomplished.

Clinical Changes

Clinically these various changes can be noted: Within a few hours following an injection, an inflammatory reaction is evidenced by swelling and redness. Little if any heat or pain is felt, because the inflammation is mild and the solution is anesthetic; also because the injection is made above the sensory nerve area.

In less than 24 hours these changes subside, swelling diminishes and in a few days the hemorrhoid begins to show evidence of fibrous tissue formation. On palpation, a cordlike, sclerotic stricture is felt directly under the mucous membrane. Gradually the sclerotic stricture resolves and softens and a restoration of tonicity of the rectal mucosa results. Hemorrhoids that have been bleeding profusely, frequently stop after the first injection.

Strength and Purpose of Solutions Used

The purpose of introducing an irritating solution into a hemorrhoid is to excite a mild chemical inflammation, sufficient to produce obliteration. In treating prolapse a similar irritation is set up between the submucosa and the muscularis, producing a fibrinous exudate which results in adhesion of the adjoining parts.

The solution, therefore, must be strong enough to excite this mild degree of inflammation, and yet not so strong as to induce a localized necrosis and slough. In the distant past the custom was to produce chemical necrosis and slough in order to obtain a good result. Decomposed, necrotic tis-

sue, if absorbed, is highly injurious to the patient. The sloughing method has, therefore, been abandoned and weaker solutions have taken its place. These weaker solutions may require more time and treatment, but they are absolutely safe and will accomplish what they are designed for.

At a symposium on the injection treatment of hemorrhoids, held at a joint meeting of the American Proctologic Society and The Royal Society of Medicine in London (1924), Graeme Anderson[18] stated that he had seen only bad results when phenol solutions of more than 20 percent strength had been used. Swinford Edwards corroborated this statement, from his experiences extending over a period of 25 years.

There is nothing mysterious about the injection treatment of hemorrhoids. The solutions used are made up of ordinary chemicals. Many substances have been tried but, of them all, phenol has proven the most satisfactory, with the exception of urea-quinine hydrochloride, and has been the basic ingredient of the majority of successful formulas.

In England the solution which has been almost exclusively used is a carbolic-glycerine mixture of 20-percent strength. Of late, Morley[16] reports better results with the 5-percent phenol technic of Blanchard.[18]

Montague[17] tried coagulation of hemorrhoids with hemostatic substances, such as horse serum, coagulen and thromboplastine, with ungratifying results. Today he uses cresylic acid with glycerine and water, a 10-percent phenol solution or 5-percent quinine-urea hydrochloride solution, favoring them in the order in which they are written here.

Terrel uses 5-percent quinine-urea hydrochloride, and reports good results in thousands of cases.

Boas[7] recommends pure alcohol, injected directly into the hemorrhoid.

Other drugs that have been used are sodium-biborate, salicylic acid, ergot, zinc chloride and others, in combinations with glycerine, phenol and water. Epinephrin (1:1000) has also been used successfully.

It is not necessary to use more than one active drug in any formula.

The solution I use is 5-percent phenol in Wesson oil, according to Blanchard[18] and Morley[16]. Wesson oil is a vegetable oil. Almond oil, olive oil, cottonseed oil or Mazola oil can also be used. This injection solution is made up as follows:

First prepare a stock solution, using Wesson oil and pure phenol crystals, equal parts. Dissolve the phenol crystals by placing the closed original bottle in hot water until crystals are all melted. Then mix with Wesson oil.

For the injection take: Wesson oil, 20 parts; stock solution, 2 parts. This makes up a 5-percent phenol solution in Wesson oil.

At times 8 to 10-percent strengths are used, especially if there is extensive hemorrhoidal engorgement and distension; also when bleeding continues after the use of a 5-percent solution. These stronger solutions are used only occasionally.

Instruments

The only instruments necessary for the injection treatment are: Special Brinker-

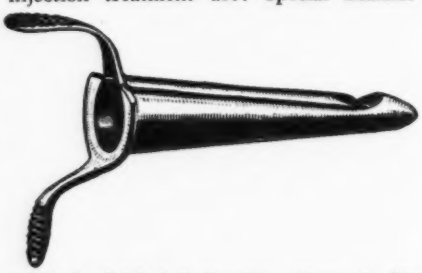


Fig. 1.—Brinkerhoff Speculum; Comes in Two Sizes—4 inch and 6 inch.

hoff speculums (Blanchard), 4 and 6 inches long (see Fig. 1); a syringe of glass or metal (Fig. 2), with rustless needles 1½ inches long, gage No. 24; cotton-swab applicators; and a head-light.

Any other proctoscope can be used, such as the Albright-Kelly proctoscopes (Fig. 3), Hirschman's anoscopes, Collier's speculum, etc. The advantage of the Brinkerhoff is

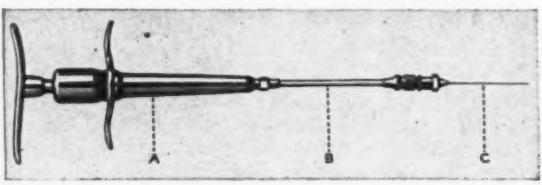


Fig. 2.—(Courtesy of the Mizzy Dental Syringe Co.) Hemorrhoid Injection Syringe. Assembled for Use. (A) Injection Syringe; (B) 3-inch Extension Adapter; (C) Rustless Steel Needle, 1½ inch long, gage 24.

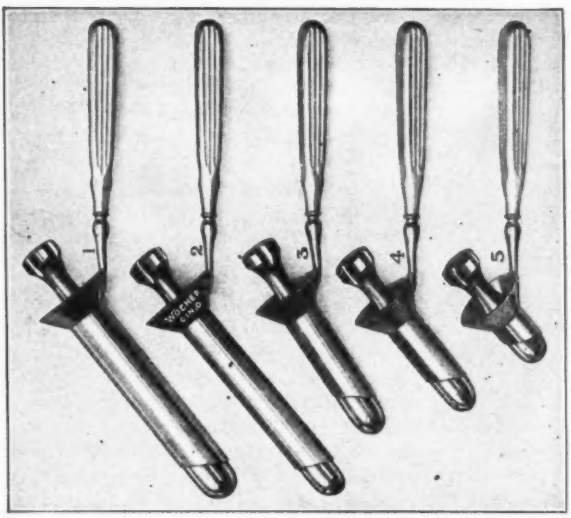


Fig. 3.—Set of Albright-Kelly Proctoscopes, with Metal Obturators. (Courtesy of Max Wocher & Son).

the reflecting end which inclines inward, throwing a splendid light on the tissues to be treated. Another advantage is the ease with which the Brinkerhoff can be introduced.

The 6-inch speculum is used mainly to start the injection of prolapsed mucosa high in the canal. It also finds a valuable place in the treatment of obese patients with large buttocks. The 4-inch speculum is the one most commonly employed.

Any syringe can be utilized. Each operator usually selects his own, depending upon his individual fancy. Glass Luers, or the metal syringes used by dentists for inducing local anesthesia, such as the "Imperial," are satisfactory.

After trying a number of syringes of all varieties, I have found the Kantleek dental syringe the most practical (Fig. 2A). This syringe is all metal and can be sterilized by boiling. Fitting onto the syringe is a screw tip adapter. To this adapter a 3-inch extension is added for better accessibility (Fig. 2B). Upon this is mounted a 1½-inch rustless needle, about 24 gage (Fig. 2C). A very satisfactory needle of this size is put out by the same concern that manufactures the syringe.

Technic for Injecting Hemorrhoids

The patient is placed in any position preferred by the operator, such as the lithotomy, Sims', knee-chest, knee-elbow, or right or left lateral. The right or left lateral, a modified Sims', is the most comfortable and least embarassing to the patient, and at the same time affords perfect access to the parts to be treated.

In this preferred position the patient is instructed to draw both knees up toward the chest and the exposed shoulder is turned slightly away from the operator. This further improves the accessibility to the parts to be treated. If a nurse is not present, the patient can assist the doctor by raising the superior buttock.

With the head-light in position, the Brinkerhoff speculum is well lubricated with vaseline and inserted into the rectum. The slide is partially withdrawn, bringing the hemorrhoids into view. The speculum is supported with one hand and the injection made with the other.

The hemorrhoid selected for treatment may be swabbed with a solution of equal parts of iodine and alcohol or other antiseptic, but the less preparation for this treatment, the less the patient is disturbed. Mere cleansing of the mucosal surface through which the injection is to be made, by brushing it with cotton on an applicator, is usually sufficient. The idea of cleansing cathartics or enemas prior to the treatment is grossly erroneous, since both stir up all manner of infective material in the colon, putting it in an aqueous suspension so that it may be easily conveyed to the minute break in the mucosa. The idea is absurd, although many surgeons use this as a routine procedure.

Regardless of what care is taken to sterilize the area, one may be sure that, one minute after the procedure, it will not be sterile. Montague has used the dry cotton applicator and no-pre-enema technic in many cases and states that he has never had an infection. I have given hundreds of injections in this manner, with no bad affects.

Select the hemorrhoid farthest away from the anal verge. The best site for injection is the crest of the pile. Most texts advise that the needle be passed well into the pile mass (Fig. 4). Needles are supplied with

the overslip guard, to enable one to regulate the depth of penetration. This technic is now obsolete amongst the majority of proctologists.

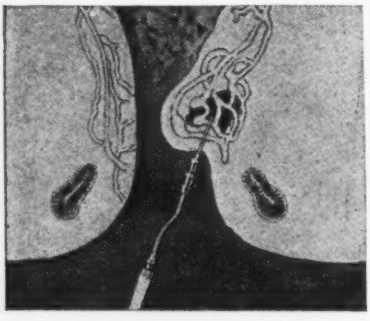


Fig. 4.—Illustrating the Wrong Technic.

The *new technic* is not to penetrate the pile mass at all, and the overslip guard is not necessary. Instead of thrusting the needle into the pile mass it is passed just beneath the mucous membrane at its crest (Fig. 5). By making the injection high, the solution is carried down directly to the varicosities of the hemorrhoid.

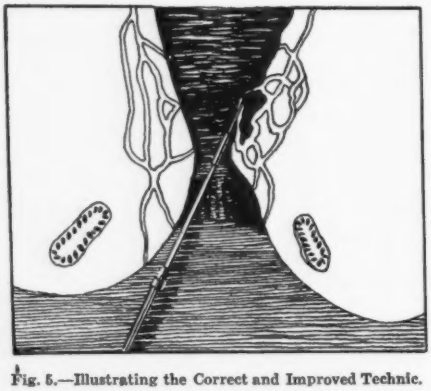


Fig. 5.—Illustrating the Correct and Improved Technic.

The solution is expelled from the syringe *slowly* until the pile appears distended and somewhat blanched. The needle is held in place for a moment or two and then slowly removed. One to three cubic centimeters are injected into each hemorrhoid. A few drops more or less matters little and experience will soon teach one when to stop. A whitening at the site of injection means that the needle has not been inserted beneath the mucous membrane. Remove and repeat, or thrust the needle deeper and try again.

If one happens to inject more of the solution than will be held by the tissue, and some oozes out, no harm will be done. When injected under the mucosa, the solution penetrates the whole pile mass, with resulting contraction and restored tonicity of the parts.

Usually two hemorrhoids are injected at one time or, as Aaron does it, one quadrant is injected at each sitting. If two hemorrhoids are to be injected, select the highest and largest, on opposite sides if possible. Frequently one injection shrinks the smaller and adjoining hemorrhoids as well.

It is advisable to inject the bleeding hemorrhoids as early as possible, as patients desire to be relieved of their symptoms. The injections are made from 1 to 3 times a week, depending on reaction and the patient's general condition.

Aaron's Quadrant Technic

The anal region is divided into four equal parts by an imaginary line along the anococcygeal raphe and a transverse line through the ischia, at right angles to this line. Four quadrants are thus outlined.

Dr. Aaron[19] injects the quadrant which contains the bleeding hemorrhoids first. The bleeding is usually controlled with the first injection, which helps to establish the patient's confidence in the treatment.

One quadrant is injected each week and the solution used is a 5-percent quinine-urea hydrochloride. The same technic can also be used with the 5-percent phenol solution.

Technic for Prolapse

A turgescent hemorrhoid usually involves the mucous and submucous layers, in many cases separating itself from the muscular wall and carrying the venous plexus downward and outward, with a resulting hemorrhoidal and adjoining mucosal prolapse.

The injection method for prolapse is concerned only with the above-described condition. Any other form, involving the rectal muscular wall and usually termed "procidentia recti," is a surgical problem and requires one of the usual operative procedures, such as rectopexy, sigmoidopexy, resection, amputation or rectorrhaphy.

A great percentage of hemorrhoidal cases coming to our attention have an associated mucosal prolapse. The injection treatment of this condition makes an excellent adjunct to the treatment of hemorrhoids.

The technic for this condition is a little different. The injections are made along with the injection of the hemorrhoids. Begin the treatment as high up as possible in the loosened rectal mucosa. The same syringe and needle is used. The special 6-inch Brinkerhoff speculum enables the operator to reach the redundant mucosa a good distance above the anus.

The same 5-percent phenol in Wesson oil solution is injected liberally, without fear of slough or after pain. Sometimes 8-percent solutions are used for this condition, depending upon the results obtained with the weaker one.

In the prolapse technic, the solution is *not* deposited just under the mucosa, but instead the needle penetrates through the mucosa and sub-mucosa and the solution is expelled between it and the muscle wall. Inject enough solution to cause tumefaction, but not whitening. If the tissue whitens, stop and penetrate more deeply. Repeat the same process in the opposite quadrant. Wait several days to a week and inject the remaining two opposite quadrants. In several more days repeat the process a step lower. This alternating of sites is continued down to the area just above the sphincters. The solution when injected usually diffuses, making it unnecessary to approach too close to the anal sphincters.

The phenol solution thus injected under the loose mucosa soon causes a non-painful, mild irritation, with the production of a fibrinous exudate, which results in adhesion of the adjoining parts after the hyperemia has subsided by resolution. There may be some induration, which later disappears, leaving contraction and adhesion of loose tissue and a restoration of tonicity.

Patients are instructed to avoid bowel movements for several hours following treatment and to prevent bearing down at any time. This permits ample time for the solution to be well diffused and absorbed in the surrounding tissue. Most gratifying results will be obtained if the above technic is carried out properly.

Post-injection Reaction

If the proper technic has been used, no pain is experienced during or after injections, because the fluid is injected above the area supplied by the sensory nerves. Should any solution accidentally work its way down to the nerve line, the most that will be experienced is a dull ache for a few hours. This can easily be relieved by the administration of amidopyrine, 5 to 10 grains (0.325 to 0.650 Gm.) The patient's comfort, at all times, is of the utmost importance.

The injection of fluid, with distension of the mucosa, may, at times, cause the patient to be conscious of a slight sense of fullness in the rectum. This is only transient, does not interfere with bowel action and is rarely complained of.

In the course of a few days the swelling disappears and a distinct shrinking and firmness of the tissue is noted. After a week or so the mass has shrunk very markedly and at times is hardly palpable. Frequently it can be felt as a cord-like structure which in time also disappears. If treated correctly, the hemorrhoid ceases to exist and in its place a small, hardly-perceptible mass of fibrous tissues remains, covered by intact mucosa, restoring normal continuity and tonicity to the bowel.

Associated Treatment

Patients are instructed to take 1 tablespoonful of mineral oil twice a day. This acts as a lubricant and helps to prevent traumatization and prolapse of the treated parts by the fecal mass. Mineral oil is usually sufficient; if not, petrolagar, 1 or 2 tablespoonfuls twice a day, or 1 ounce (30 cc.) of castor oil may be given instead.

Patients are advised against lifting and straining at stool. This is very important.

Another valuable post-injection aid, in cases of prolapse, is the instillation of an ounce (30 cc.) of mineral oil rectally, using a rubber "baby syringe." This lubricates the passage of the first stool and minimizes the danger of further prolapse.

If any tenderness is present after injections, an antiseptic and anesthetic ointment or suppository should be prescribed such as Butesin Picrate ointment, Anesthone Cream or Anusol suppository. Five grains (325 mgm.) of amidopyrine may be used at any time to help check any discomfort.

Patients do not like to be hurt and everything available should be administered to maintain the patient's comfort before, during and after the treatment.

Contraindications

The injection treatment is not intended for external thrombotic piles, skin tabs, "sentinel" piles, internal thrombotic, or gangrenous piles, or for protruding, irreducible piles.

Disadvantages of Operative Methods

A few years ago, Sir C. Gordon-Watson stated that, in 560 consecutive operations at St. Mark's Hospital, nearly all (536) were performed by the ligature plan, fifteen by clamp and cautery, and nine by the Whitehead method. There were two deaths from post-anesthetic broncho-pneumonia. There was a trifle more than 10 percent (58 cases) of "constrictions," and there were 52 cases of tags, 6 of fistula, 5 of secondary hemorrhage, 2 of submucous abscesses and one of fissure.

Regarding the stay in the hospital, the average was 10 days for clamp and cautery, 21 days for ligature and 26 days for the Whitehead operation.

At the Mayo Clinic, according to Buie, the patient is dismissed from the hospital in from 12 to 16 days.

Advantages of the Injection Treatment

1.—No general anesthesia is necessary.

2.—No post-anesthesia discomfort, such as vomiting, etc., occurs.

3.—No pain.

4.—The work is done in the office.

5.—Patients are not confined to bed and hence lose very little time from their work or business.

6.—No hospital or operating room expenses.

7.—There is steady improvement.

8.—There is no risk and no danger from complications.

9.—Can be safely used in those who are poor ether risks, such as diabetic, nephritic, senile and anemic patients.

Conclusions

If cases are properly selected, a proper solution used and ordinary antiseptic precautions taken, good results can be expected from the injection treatment of hemorrhoids.

To avoid any recurrences, patients should be seen occasionally for a period of several months.

Bibliography

1.—Terrell, E. R.: "The Treatment of Hemorrhoids by Injection", American Proctologic Society Meeting, May, 1925.

2.—Tuttle, J. P.: "Diseases of Anus, Rectum and Pelvic Colon", 1902.

3.—Montague, J. F.: "The Modern Treatment of Hemorrhoids". Lippincott. Philadelphia. 1926.

4.—Hill. T. C.: "Manual of Proctology"—Lea & Febiger. Philadelphia. 1926.

5.—Aaron. C. D.: "Non-Surgical Quadrant Treatment of Internal Hemorrhoids and Prolapse of Rectum", *N. Y., Med. J.*, Dec. 20, 1922, cxvi, 732.

6.—Yeomans, F. C.: "Proctology" Appleton, New York, 1929. 158.

7.—Boas, I.: "Injection Treatment of Hemorrhoids." *Med. Klinik.*, June 11, 1922, xviii, 753.

8.—Bensaude, R.: "Treatment of Hemorrhoids by Perivenous Injection." *Bull. de la Société Méd. des Hopitaux*, Paris, May 11, 1923, xivii, 686.

9.—Bergulund, G.: "Non-Operative Treatment of Hemorrhoids" *Hygeia*, Aug. 15, 1916, lxxviii, 1113.

10.—Jorge, J. M.: "Hemorrhoids" *Semana Med.*, June 28, 1917, xxiv, 767.

11.—Escomel, E.: "Non-Surgical Treatment of Hemorrhoids", *Cronica Medica*, 34:192, June, 1927.

12.—Hooton, A.: "Injection Treatment of Piles", *Indian Med. Gaz.*, Dec., 1921, 56:458.

13.—Morley, A. S.: "Hemorrhoids", Book—1923.

14.—Edwards, S.: "Injection Treatment of Hemorrhoids", *Practitioner*, 1915.

15.—Anderson, G.: "Symposium on Injection Treatment of Hemorrhoids", American Proctologic Society and The Royal Society of Medicine, in London, 1924.

16.—Morley, A. S.: "Improved Technic for the Treatment of Internal Hemorrhoids", *Lancet*, March 17, 1928. 1:543.

17.—Montague, J. F.: "Modern Treatment of Hemorrhoids", Lippincott, Philadelphia, 1926. 201.

18.—Blanchard, C. E.: "A Text Book of Ambulant Proctology", Medical Success Press, Youngstown, Ohio. 1929, 356.

19.—Aaron, C. D.: "Diseases of Digestive Organs", Lea & Febiger, 1927. 835-840.

Mind and Disease

The common idea is that it is wonderful how the mind can cure the body. But what is really wonderful is the way the mind can produce symptoms in the body, for the mind can actually produce the symptoms of almost any disease. It cannot produce the actual disease, but it may give rise to the symptoms of it. This is why many cults, Christian Science, Osteopathy, electric belts and all other forms of suggestive therapy may actually effect cures. The persons who have been "cured" had "symptoms" of a disease that did not actually exist, but which symptoms their minds had produced in their bodies.—Dr. J. J. Walsh, *in* Med. Times, *June*, 1928.

Dental Service with Teaching and Research

(The Columbia Plan)

By Harold J. Leonard, D.D.S., B.A., *New York*
Professor of Dentistry, Columbia University

DENTAL decay and pyorrhea, the common diseases of the teeth, constitute one of the most difficult economic problems in modern health service. As society is organized, modern dentistry is available only for the well-to-do. Nearly everyone has more or less of these diseases, yet but a small fraction of the population can afford the costs for adequate repair and treatment. To the university dental school, with ideals of service which include adequate dentistry for all the people, the solution of this problem offers a challenge of the first magnitude. Columbia University is attempting, in a small way, a solution which is somewhat unusual in the annals of dentistry.

Nearly everyone has had experience with tooth troubles. Rare, indeed, is the modern person who never had a toothache. Under very primitive conditions of living, decay of the teeth is rare, but under modern conditions, especially in city life in England and the United States, it is the most prevalent of all physical defects. In New York over ninety-five percent of children have decayed teeth, with an average of five cavities per child. Most of these cavities remain untreated until the teeth containing them are lost, either by decaying completely away or by being extracted on account of toothache. The loss of teeth leads to shifting of the remaining teeth, which results in their loosening, becoming pyorrheic and finally also lost. Many persons below the age of twenty have teeth so diseased that nothing short of complete extraction can be done for them. During this period of decaying teeth, abscessing roots and pyorrhea, a tremendous handicap is placed on the individual and through him on society. The pain and discomfort is the least of the trouble.

Much of the absence in school is due to tooth trouble and, since absence in school leads to repetition of grades, at a cost of nearly one hundred dollars a grade in New York City, this cost to the community is by no means negligible. The odor and unsightliness of a mouth with decayed or pyorrheic teeth is a serious handicap for boy, or girl, man or woman. But more than these the effects on the body, as a whole, of continuously swallowing septic matter from decayed teeth and diseased gums or of absorbing it into the blood stream from abscessing roots are extremely serious. This is one of the commonest causes of rheumatism and many other diseases which incapacitate the individual and cause, in the aggregate, a tremendous expense to society.

Expense of Dental Treatment

It is quite impossible for the average family to have the necessary dental treatment. The average income per family in New York City is less than $2,000 and the average size of family is five members. On such an income the greatest possible allowance for dental service is not over five dollars a year per person. It is obvious that neglect of dental needs is not a matter of carelessness or fear of pain, but is simply due to the fact that, at the present costs of dental care, it is out of reach of the vast majority of people in the city.

The high cost of dental service is not the fault of the dentist, although, of course, many dentists dealing with a wealthy clientele are highly paid. The costs to a dentist having a modest office with an assistant, in a good office building in middle Manhattan, are approximately five thousand dollars a year. If his time is completely filled and he is to make, say, three thousand dollars salary, in addition to his expenses, his charge per hour must be at least five dollars. This brings gold fillings, which are the only very durable restoration for most cavities, to around ten dollars apiece and bridge work to around fifteen dollars a tooth. There are dentists who do work for less than this but it is usually at the expense of scrupulous care in the work. Cheap dentistry is worse than useless, since it not only has to be done over but, in the meantime, further damage has occurred to the

teeth and frequently serious systemic complications as well. Dentists operating in districts of lower rentals can make some reduction in their operating costs, but it is obvious that adequate dental relief, for the majority of families in New York, can not be obtained from private practitioners, even under the most economical conditions.

Recognizing this condition, attempts have been made to meet it by means of dental clinics. The dental clinic is an organization in which dentists are hired and in which, by division of labor and specialization, a higher grade of work may theoretically be turned out in less time than in private practice, where one man attempts to give all types of treatment. A considerable saving may be made in rental and equipment and assistants' service, and other items that go to make up the expense of doing business. Also the dentist will work for less salary in the clinic, because there is less business risk to him. On the whole, therefore, the dental clinic, whether maintained by the public schools, health societies, labor unions or the community, is able to give an equivalent amount of treatment for approximately two-thirds of the cost from the private practitioner. Furthermore, the clinic organization, under reputable management, offers some assurance that the treatment given will be at least be honest and of fair grade —a thing that many patients have learned is not always true of the service of private practitioners.

Routine in the Clinic

One of the great disadvantages which a dental clinic must face is the lack of inspiration to the dentists employed. After the novelty wears off the work tends to become a routine, with little interest for the operator excepting the salary that goes with it. The personal interest in the patient which the dentist feels for his personal clients tends to be lacking in the clinic. Also, the spur for personal success with patients which drives the private practitioner to give better and better treatment and to keep studying to improve, is not usually present with the worker in the clinic, since he sees no prospect of great advancement ahead. The result is usually a lower quality of service from the clinic than can be obtained from private practitioners. Also, it is difficult to get dentists with first rate skill and ability to devote their lives to such work. Newly graduated dentists may do it temporarily, while they are developing technical proficiency and gaining experience, only to resign as soon as they feel they are prepared successfully to open a private practice. The administrative problem of maintaining a staff of dentists of first rate skill and judgment who are eager to improve their service to the utmost in every possible way is a very difficult one.

A similar problem has, of course, occurred in medical clinics and hospitals. The solution in their case has been to combine the clinic or hospital with a teaching function, which introduces the idea of fine teaching and research as inspiration to the staff. To this end many of the large city hospitals are now manned by medical men who are appointed as teachers by a medical school with which the hospital becomes affiliated. This arrangement is the one in effect in the Medical Center of Columbia University—the Presbyterian Hospital. Under it the hospital becomes transformed from a routine service institution to a research institute, with the desire for more knowledge and skill ever uppermost in the minds of every one concerned. Each patient becomes a research problem, not, of course, to be experimented on to the patient's detriment, but to be studied most thoroughly to get every bit of information which that patient's particular ailment can give for the benefit of the treatment of that patient and other patients with similar ailments who may follow.

Service with Research

Columbia University is therefore attempting a new venture in her present purpose to establish an experimental dental clinic, with a primary aim of giving high-grade dental service to the community at cost, this cost to be sufficiently low so that people, not now able to afford dental service from high-grade practitioners, may obtain it at the clinic. All types of service are available, from the emergency and temporary types necessary for the patients of the Presbyterian Hospital and Vanderbilt Clinic, who can pay only a part of the cost of treatment, to the most complicated mechanical restorations which are used for those who desire and can afford the luxury of elaborate appliances.

The purpose back of this project is twofold: first to serve directly the community of New York—always a major aim of the University—and, second, to increase by manifold the opportunities for students to observe and study interesting cases and the

opportunities for dental research. It is the effort, on the part of the University, to combine the functions of a community dental clinic with those of a dental school, in the same manner as has proven so successful in the field of Medicine.

To make it serve that portion of the community not now able to afford adequate treatment from private practitioners, people of sufficient means to afford good dentistry outside are excluded. The University has no desire to enter into competition with private practitioners who are giving satisfactory service to their patients. It is to fill a niche now unfilled that the University enters into this undertaking.

Columbia University purposes to combine in one dental clinic the functions of the charity clinic with that of the high-grade pay clinic. For two important reasons it is not enough to limit the work to the charity phase alone. From the standpoint of dental students, a charity clinic holds but little interest. There is much of a pathologic nature to be seen and much to be gained in observation of mouth surgery procedures, but observation and practice of the type of treatment that the students need most—that in the manipulation of metals and porcelain for restorations—they get but very little in such a clinic. For purposes of modern dental teaching, therefore, a large clinic in fine dental restorations is necessary. The students' observation of this work in progress, by competent demonstrators, is quite as valuable as that of oral surgical procedures.

A third reason for a clinic in high-grade reconstruction procedures, in which highly trained dentists do the work, is for purposes of research. There is still much to learn in regard to the various reconstruction procedures in dentistry and such a clinic offers an ideal opportunity for such a study. Capable dentists, who would otherwise be in private practice, are selected to perform the work. To such dentists the joy of working in security, in a teaching institution associated with research problems and research men, more than compensates for the surrender of the independence of private practice, with its possibilities of greater ultimate financial gain but greater immediate risks.

Dental Prophylaxis

Another service which a university can offer is a preventive program. Much can be done at present, in a preventive way, by frequent and continued examinations of the teeth of children, beginning at an early age, teaching the children the proper use of the tooth brush, filling cavities as soon as they have started and teaching dietetic habits which will result in the minimum of dental disease. Indeed, the preventive program should start earlier—at the time the mother is carrying the child before birth. Dietary and preventive dental measures, taken in the mothers, will help to prevent defects in the children's teeth as they form.

As a part of the teaching demonstration clinic, a children's clinic in preventive dentistry is being organized. This clinic will have to serve purely as a small demonstration clinic, since preventive dental work must ultimately be a function of the public schools. Only a sufficiently large number of children is necessary by which to teach preventive measures to dental students and students of dental hygiene and to serve for research studies in preventive dentistry.

The difficulty with the program of prevention is that the profession of dentistry does not know how to prevent dental disease from occurring. Much may be done by present means to miminize dental decay, but no one, as yet, knows how to prevent it absolutely. There is no reason to believe that the prevention of this disease is any more difficult than that of many of the others which medical science has now so well under control. The need is for research into the actual causes and reasons for susceptibility to dental decay.

The university dental school, with its large clinic, its research laboratories and workers of all kinds, in conjunction with the medical department, is the place where this necessary work must be done. Ultimately the solution of the problem of the care of the teeth of the poor and people of moderate means must be in discovering the means of preventing dental disease absolutely and of applying this knowledge through the schools. The discovery of the means is a matter of research which must depend on the universities which, in turn, must depend on the support which they can get from the community for these vital but necessarily expensive projects.

The Tuberculous Etiology of Neurasthenia

By Joseph Hollós, M.D., *New York City*

THE syndrome of neurasthenia is well known to all practitioners, as they meet it often—but never gladly. Neurasthenic patients are burdens, both to physicians and their associates. Both are weary of constant complaint without corresponding organic illness. These patients resist every kind of treatment, and are even a burden to themselves, because they are not able to endure any stress—work, family, society; and not seldom they become melancholy or they attempt suicide.

Authors give various explanations for neurasthenia, but in general they distinguish:

1.—Neuropathic patients, inclined by inheritance toward the condition; and

2.—Normal persons whose neurasthenia is brought about by some strong external or psychic cause.

According to Binswanger the neurasthenia is an exhausting neurosis; according to Bernstein, an autotoxicosis; according to Fleury it is a weakness of vegetative nerves and endocrine system; and according to Freud, most of the symptoms are of psychic origin; and so on.

Twenty-two years of observation has convinced me that, in most cases, the syndrome of neurasthenia is nothing but the remote consequence of a chronic infection which has acted over thousands of years; and that this infection is tuberculosis.

Where tuberculosis appears for the first time (as we know from the history of phthisis pestilences), it causes greatest devastation. The course of infection on virgin soil is acute or subacute, and bears a resemblance to the experimental tuberculosis of guinea pigs. Some uncivilized races have been exterminated by tuberculosis introduced among the inhabitants. But if the infection passes over many generations it becomes attenuated and presents more and more chronic forms. Still later, the sickness becomes relatively benignant and inclines to spontaneous healing. We find more and more cases where the infection never or seldom passes the limit of latency or subactivity. Only a small percentage of those who are infected will become "consumptive" or otherwise manifestly tuberculous, because the disease has become mild throughout the centuries, although the bacillus is as virulent today as ever.

What has happened?

The human organism has become acclimated to the bacillus; that is, its resistance has been augmented or, in modern nomenclature, *immunity* has developed. The tuberculous immunity, transmitted from generation to generation, has increased through constantly renewed infections.

Immunity and Hypersensitiveness

The slow process of immunization with added new infections develops a certain grade of hypersensitivity against the toxin of the bacillus. Nowadays there is no need to prove how greatly the hypersensitivity disturbs the body chemistry of the human system. The hypersensitive organism begins to react, and the vital factor of this reaction is the functional disturbance of the endocrine system.

Acting during many generations, the disturbed functions of the endocrines gradually produce weakness and the latest descendents are inclined toward illnesses which are brought, erroneously, in casual connection with civilization or inherited racial characteristics. In this respect we find very obvious differences among races who are opposite from a point of view of tuberculosis; these are Jews and negroes.

The Jews have the smallest mortality in the world from tuberculosis. According to the statistics of Maurice Fishberg*, the death rate from tuberculosis was:

In Berlin (in 1905) 98 Jews; 216 non-Jews.

In Vienna (in 1905) 154 Jews; 234 non-Jews.

In New York, on the East Side (in 1906) 136 Jews; 239 non-Jews.

In the entire United States from 1885 to 1890, the death rate from pulmonary tuberculosis was:

98 among Jews

*M. Fishberg: "Tuberculosis Among the Jews." *Med. Record.*, Dec., 1908.

205 among native born Americans
744 among negroes

The explanation of this remarkable difference is as follows: The Jews lived for over 1,500 years, in ghettos, under crowded conditions. They constantly transmitted tuberculous infection to one another and through many generations their inherited immunity increased steadily, whereas the rest of the white race are mostly descendants of farmers and country folk, whose ancestors were less exposed to the infection. The negroes, on the other hand, were brought here only a couple of centuries ago, from countries free from tuberculosis, and have been subject to tuberculosis for only a few generations, therefore their inherited immunity is least.

But just because immunity and consecutive hypersensitivity is most increased in the Jews, their endocrine weakness is most highly developed, and that is the reason why we find in them the greatest number of those pathologic conditions which are the consequences of endocrine weakness. Such is, for instance, *asthenia* which in Russia and Galicia, at the mustering for military enlistment, was considered as a racial characteristic of the Jews. Such is, moreover, *diabetes* and many other metabolic disorders which are most prevalent among Jews. In this category, too, *neurasthenia* belongs, which is most prevalent among Jews of all the American and European population. On the other hand, the recent tuberculization of the negroes has not yet made possible the development of a suitable grade of immunity and consecutive hypersensitivity, therefore the endocrine system of negroes is yet sufficiently intact, and that is the reason why they have the least diabetes and the least neurasthenia of all the American population. No doubt we may find these differences also in many other illnesses which can be traced back to endocrine weakness.

The late descendants of tuberculous generations suffer therefore, more or less, from an endocrine unbalance, and the tuberculous infection which, in such families, is always or mostly of a mild character, may rouse neurasthenia, even in childhood, without any accustomed sign of tuberculosis.

Development of Neurotic Symptoms

The child becomes nervous and irritable. Small children cry a great deal; older ones become morose. They are easily fatigued and sometimes feel depressed all day. They are usually poor sleepers and often wake up with a start, due to disturbed dreams. The appetite is capricious and they incline to constipation and diarrhea. Sometimes they cannot control their urination. The mental function is usually vivid; their appreciation is quick.

More often the neurasthenic symptoms start with the beginning of maturity, complicated, mostly, by the disturbances of puberty. Puberty is the critical period for the start of neurasthenia, and generally, also, for the activity of tuberculosis. At other times the syndrome or one or another characteristic symptom of neurasthenia begins in adults who pass puberty normally. The beginning of the illness synchronizes with the beginning of the activity of infection or with a new focus or a new infection, or with some external or psychic factor, disturbing the equilibrium of the already unstable endocrine system.

The feeling of great fatigue and severe, rapid tiring are especially characteristic among the manifold symptoms. The patient awakes tired and drowsy, and for hours tries to conquer lethargy and fatigue. He is usually more tired in the morning than in the evening and becomes exhausted very easily, the fatigue increasing so as to incapacitate him. George D. Head, of Minneapolis* called this form of concealed tuberculosis "The Tired Sickness".

Various disturbances of sleep may develop. Insomnia is frequent and may persist for a long period or may recur periodically. Sleep is often disturbed by nightmares. At other times the patient may sleep soundly for ten hours, but in spite of this may feel drowsy during the day and often fall asleep while resting.

Vasomotor disturbances are usually present, such as rapid and changeable, rarely arrhythmic, pulse, precordial pains and other sensations of the heart, especially palpitation. The patients are often awakened at night by a severe palpitation or one single strong action of the heart. Cold and wet hands and feet, free perspiration, a tendency to bleeding of the nose, and easy blushing supplement the pathologic picture.

Among the many disturbances of the gastrointestinal tract, loss of appetite should be mentioned first as a very frequent symptom which may alternate with a nervous

*G. D. Head: "Concealed Tuberculosis or The Tired Sickness," Philadelphia, P. Blakiston & Co., 1924.

hunger; others are nausea, diarrhea or obstinate constipation. Hyper- or subacidity is often present.

A frequent nervous symptom is vertigo, chiefly when bending down or rising. Sometimes it is so severe that the patient almost falls. Fainting also occurs.

Headache is usually present, or a feeling of pressure or tension in the forehead, occiput or nape. Tormenting headache is sometimes the chief complaint of the patient. Besides this, many other kinds of pain may be present. We often find gastric pain, appearing either before or after meals, at times in the form of pressure or fullness. Obstinate "heartburn" or cramplike stomachache may be present, arousing suspicions of gastric ulcer. At other times we find pain localized in the region of the gallbladder, appendix, ovary or kidney. Often the severe and obstinate pains lead to unnecessary surgical intervention. There are, further, frequent joint and muscle pains; sometimes neuralgia; and very often backache.

Various disturbances of the sexual sphere may develop. Masturbation is rather common, and we find premature ejaculation, impaired potency and frigidity in women. Menstrual disorders may appear, among them dysmenorrhea, with all kinds of accompanying symptoms. Leukorrhea is often present.

Patients often tire quickly of mental work and are unable to sustain prolonged mental effort. They are restless, irritable and nervous. They become easily frightened and at such times may have severe palpitation of the heart. Infrequently a sensation of fear also may be present, recurring from time to time. Moods are very changeable; the patients are depressed, melancholy, unreasonable and cry easily. They may be subject to severe crying spells. A nervous symptom, by no means rare, is that the extremities are often asleep. Relatively often the patients complain of respiratory disturbances, they cannot breathe deeply or they suffer from shortness of breath. The great nervousness, the mental exhaustion, the sleeplessness, the sexual disorders may lead to psychic disturbances, to hypochondria and even to suicide.

Sometimes many or even all of these symptoms torment the patient; at other times only one or a few symptoms dominate the pathologic picture, whereas other symptoms are to be found only in rudimentary form.

History and Examination

Searching accurately, we may find the source of infection in the ancestors or relatives. Often the patient has no idea that he comes of tuberculous family, because of the great attenuation of the sickness. We may find, in the anamnesis, a past pleurisy, a forgotten hemoptysis, a persistent cough after a cold, an anemic or undernourished condition in childhood or in puberty, healed after a climatic cure, and so on. In other cases no such preceding symptom arouses our suspicion.

On examination we often find suspicious signs; for example, Pottenger's sign or some cicatrised condition of an apex; on x-ray study a suspicious spot or the enlargement of peribronchial glands. At other times, on the contrary, we can detect no alteration at all; the patient may be a well developed and nourished person and nothing makes us suspicious of tuberculosis. In most cases, however, the patient is more or less underdeveloped and undernourished, with a pale complexion and some curvature of the spine, due to the disturbed calcium metabolism before puberty. The muscles are flabby; the skin is inclined to eczema, acne or psoriasis. The hands are cold and moist; pulse and temperature are variable; hemoglobin and blood pressure are somewhat low. In children, the lanugo changes into light hair.

If physicians would not dislike the application of the tuberculin test (they already use the Wassermann reaction as a routine method) they would be astonished at how great a percentage of patients diagnosed as neurasthenia will give a positive reaction. They would be even more astonished if they would follow my advice,* add *Spengler's immune-blood* to their therapeutic armamentarium and use it frequently.

Specific Diagnosis and Treatment

I was led to recognition of the tuberculous origin of the symptoms of neurasthenia exclusively by the application of specific treatment. I worked for a year with the dualistic tuberculin method also taken over from Carl Spengler (tuberculosis vaccine and *perlsucht* vaccine)—which was advantageous from the point of view of study, for by using unsuitable vaccine

*J. Hollós: *"Symptomatologie und Therapie der latenten und larvierten Tuberculose."* Wiesbaden, J. F. Bergman, 1911.
J. Hollós: "Tuberculous Intoxications," Edinburgh, E. & S. Livingstone, 1928.

(isotoxin) I was able to awake symptoms artificially, and then stop them by using the suitable vaccine (heterotoxin). The immune-blood, however, proves more effective, because, in cases of intoxication syndromes, there is already a hypersensitivity which scarcely tolerates tuberculin treatment; whereas, not seldom, one or a few injections or a short percutaneous application of immune-blood, as ready antitoxin, can halt the symptoms of intoxication. Just because the aforementioned symptoms follow the hypersensitivity, and the latter is the consequence of immunity, we do not find them at all, or only in rudimentary form, in progressive phthisis or any acute or subacute form of tuberculosis.

Sometimes a single course of treatment, lasting for a few months, is sufficient for perfect and definite healing. After the successful neutralization of the toxin disturbing the equilibrium of the endocrine system, the healing process localizes entirely in the tuberculous focus, and does not longer disturb the general feeling. At other times, either because of bad hygienic conditions, or because of renewed infection, new tubercles develop, and the illness recurs. Naturally, these cases need new treatment, which we may arrange as soon as the first symptoms of intoxication appear. So we can definitely heal, by a series of treatments, as in cases of syphilis.

To prove that even a single course of treatment can definitely cure, I wish to introduce two cases which I treated 20 years ago. One of them, a noted writer, was, at that time, already broken under the stress of neurasthenia and I saved him from the psychiatric institute; the other, a young physician, was nearly wrecked.

The writer was then 28 years old and was already regarded as one of the best Hungarian poets. He fought against constant headache, sleeplessness, nervousness and other severe symptoms of neurasthenia and, in his depressed state, he twice attempted suicide. After the second attempt he became an inmate of the psychiatric institute of Budapest University, where he had been for a year when I visited him. The chief of the institution, Professor Moravcsik, assured me that the patient had such a severe neurasthenia, with psychic depression, that he needed the constant care of the institution. On my intervention, however, he agreed to allow the patient to go home temporarily.

As I was not a psychiatrist I made a diagnosis of tuberculous intoxication and with immune-blood treatment, continued for a few months, I stopped all of his symptoms. After he felt well, I persuaded the patient that he had no trouble at all, could resume his work and might associate with people. After half a year I wrote to the professor about the cure. He assured me, in his answer, that the amelioration was only temporary and that the illness would soon recur.

For 20 years the ex-prisoner of the psychiatric institute continued, without any rest, a great spiritual work as a writer, journalist and lecturer of the highest ability, and his neurasthenia has not, so far, recurred. Last year there was a jubilee, celebrating his completion of 25 years as a writer.

The following case is especially instructive, since it deals with a young physician, 29 years old, who himself thought that he had neurasthenia and who, for a number of years, was treated for it by many physicians. Finally he became entirely well after immune-blood inunctions. Upon examination—with the exception of paleness and a slight loss of weight—no physical signs were demonstrable. He writes about his own case as follows:

"I was healthy during childhood. For about four years I had suffered from frequent headaches and tired very easily. At night I slept a great deal, but had restless dreams, and during the day I was drowsy and sleepy. Later I became melancholy, depressed and often very irritable. I lost a little weight and my face became very pale. Periodically I was troubled with anorexia, definite pressure in the stomach and gaseous eructations. Backache and lumbago often occurred. I had a tendency to catarrhal affections. There was no fever, cough or night sweats. My trouble was considered neurasthenia both by my physicians and by myself, and I tried practically all the various treatments recommended for this condition—hydrotherapy, drugs and climatic treatments. But drug therapy gave as little improvement as a vacation at the seashore. My symptoms returned quickly after my trip and appeared in gradually increasing severity.

I was decidedly skeptical about any specific anti-tuberculous treatment, and did not allow even a diagnostic injection. Only after much persuasion did I consent to try inunctions of immune-blood. I began with the 5th, later the 4th, and finally used the 3rd dilution, five drops a day. At the end of the second week I really noticed a definite improvement. At first my appetite improved and my mental irritability subsided; during the third week I had practically no headaches; the tired feeling and the backaches ceased. The change in my condition was so marked that my friends (who knew nothing

about my undergoing any treatment) noticed a definite improvement in my appearance and actions. Since then, nine months have passed and my capacity for work has greatly improved. Although my exhausting work has increased very much, I have gained weight. I have not had to interrupt my work and, in spite of a severe winter, have not been troubled with catarrhal affections."

This description appeared in my first book on tuberculous intoxications, in 1909.* The young physician has became, since that time, a noted surgeon of a large hospital. He suffered the stress of war and imprisonment in Siberia for years and is working with great ability, without any recurrence of his neurasthenia.

Of course, not all cases of neurasthenia are to be cured with tuberculin or immune-blood, as there is not, in every case, an actual tuberculous infection present which provokes or sustains the illness, even if the neuropathy itself may be a late consequence of a tuberculous degeneration. After my experiences, however, I maintain that, in the majority of cases, we find the origin of neurasthenia in the bacillary infection, and all these cases are to be definitely cured, or at least greatly ameliorated, by means of immune-blood or tuberculin treatment.

Often the cure will be hindered or frustrated by the socalled *neurasthenic psyche*, confused with delusions which may be considered rather as an insanity, having really nothing in common with the real neurasthenia, but it may complicate it.

The common use of immune-blood in general practice will throw a new light on this whole question and will give back many persons to themselves, to their families and to society.

2 West 83rd St.

*J. Hollós: "A gümökóros intoxicatiók". Budapest, Franklin Tars. 1909.
J. Hollós: "Les Intoxications Tuberculeuses." Paris, Masson et Cie., 1910.

Factors In the Cost of Medical Care

The Hospital, the Nurse and the Specialists

By Edgar J. Torey, M.D., *Freeport, Ill.*

A PECULIAR condition of medical affairs appeared in a certain community not long ago, which may be of interest.

In a city with a population of about 20,000, there are several hospitals, including three good-sized, well equipped and thoroughly modern institutions, which were called into existence mainly on religious grounds and are kept going by reason of the support of various sectarian bodies.

When I say that these hospitals are modern institutions, I mean that the buildings are costly, the equipment is costly and the upkeep is costly. From all of them it is reported that not more than sixty-five percent of the possible service is being utilized. So it did look as if there was no particular necessity for additions in the way of hospitals.

This city is the home of a multimillionaire who felt the urge to spend quite a considerable sum in an effort to reduce the high cost of sickness to the large body of middle class citizens, who were, he thought, "getting it in the neck."

Without a definite idea as to how the reduction in cost was to be brought about, our millionaire friend consulted the physicians of the community who awaited a disclosure of the project, whether it was to be additional hospital facilities or a sanitarium or some other method of relief.

With the suggestion of more hospital service the physicians of all the staffs raised objections, fearing to jeopardize the earning capacity of their denominational medical institutions.

The sanitarium idea never got very far, because of fear on the part of the physicians that such an institution would be used to exploit the products of the founder, with the assumed good wishes of the physicians.

Here was a man with millions, who was apparently willing to spend a generous amount of his wealth to benefit his fellow citizens and was unable to do so because of the opposition, latent or expressed, of members of the medical profession. And so the whole affair has died out; the millionare without a chance to spend his

money and the community not benefiting a particle.

There are a number of factors in the cost of medical service, but, instead of looking at all of them to get a fair verdict, it is the popular rule to attach the blame for the high cost to one thing only —the medical or surgical charges.

Glance for a while at other possibilities.

The first factor is the hospital building. Less money spent on elaborate, ornate, costly, buildings would go a long way to cut the overhead. Why not forget the religious rivalry and erect structures at half the cost, where the care and protection of the sick would be just as effective as in the higher priced buildings?

The next factor is the equipment. Each hospital is expected to be equipped in every department of medical and surgical service without any crowding, calling for larger buildings, with high upkeep and wasted space, the excuse for the space being usually stated as the room necessary for convalescents.

Specialized Hospitals

If, in place of institutions equipped in all departments, they could agree on the proposition of having one hospital take charge of all obstetric work, another of the surgical work, another of the medical work, another of contagious disorders and finally one for the convalescence stage, and equipping each one in accordance with its work, all would be conducted in a better way than at present. There would be one fully equipped institution for, say, surgical work, instead of four or five requiring equipment. There would be plenty of opportunity for men of means to spend all they cared to spend, in a dozen ways, for the benefit of their fellow citizens. Every benefactor could select what he is most interested in and give his largess where his fancy dictated.

Is the average general hospital the place to have the babies? Does not approaching motherhood deserve the very best from society? Is the top floor the place to begin life? In order to get the necessary space for the babies, the top floor has to be a part of a necessarily large general hospital building.

Now look for a moment on the conditions in an institution given over to mixed surgical and medical work. Is a hospital doing surgery a fit place for an ordinary sick man? Doesn't he go around wondering when his turn is to come? Isn't the atmosphere enough to keep him in the doldrums? Why not a surgical building for surgical work only, and let another institution take charge of the other work?

So with contagious disorders, which should be under municipal control.

Finally, are any of these institutions we are discussing suitable places for convalescents? We have all seen, many, many times, the father or mother of a family pass through some acute attack of disease, leaving the rest of the family to care for themselves and to raise the money to pay for the care of the sick one during at least the acute period.

Then starts in, for the patient, the long grind to gain strength. Frequently this covers six or eight months. If these are spent in the hospital, the expense continues, with the family still scraping and saving. If he is sent home, both the work and expense for the family are increased. A general hospital is certainly no place to get well in. With the changed temperament of the sick man, he needs attention of the waiting order instead of the medical order.

The Practical Nurse

This could easily be given by a nurse with a limited training of, say, two years, or perhaps even less. It is waiting on that the patient wants, not the services of a medical attendant, whether a doctor or a graduate nurse. These socalled practical nurses would be the ones to go to the patient's home and help out the tired mother or daughter in the care of the ailing one. We all have, many times, seen the kindly, motherly, old fuss-budget who did, or used to do, so much to grease the wheels of convalescence years ago. God bless the old soul and would there were more of the same kind today! But their ranks are sadly depleted and are not likely to be renewed. The better organization of the graduate nurses and their air of superiority towards the practical nurse have proved too much for the latter; and the snobbish public follows the example set.

This brings up the next factor — the nurse and her fees. With the classified hospital in place of the general, fully trained nurses would be required in all except the sanitariums for convalescent patients. But even here there is a chance to make a big saving. Why require a young woman to spend many months and years in

the study of subjects which she could not or would not put in practice without the advice of the physician? Look at the array: Physiology, pathology, chemistry, urinology, etc., etc.! Where their highest duty should be the performance of a physician's orders, we have a body of young women who actually know more than many of the doctors, especially if the latter have outgrown their callow youth.

Then look at the fees; *Fees*, mark you, not wages! And because of this advanced, compulsory and generally useless course of study, these young women have fixed a scale based on the remuneration of the physician. And this scale is of their own fixing, established by themselves without supervision and maintained by a close organization. And the different hospital staffs, in their eagerness to boast of the large numbers in the nurses' training schools, have to carry out the wishes of the nurse body. Hardly one of them will take employment at less than seven dollars a day, some asking for ten or more, with a substitute for night duty or an agreement for a number of hours or days off. How many of the middle class can afford these charges? Exhausted by the first burst of expenses of an operation, the expenditure continues, week after week, with no relief.

There should be two classes of nurses; one for convalescence, the other for acute and operative cases, each with its own scale of pay. As soon as the patient gets to the point where the physician thinks the practical nurse can do the work, let the high priced nurse go, if possible without any feeling in the matter, and certainly without any upturned nose of superiority.

Why not eliminate all this fancy instruction which turns out nurses who are semi-doctors, give them a good course in the essentials and let them spend all available time in the kitchen or laboratory or cooking department of the institution? The average trained nurse today knows much that the doctor alone is supposed to know, but when it comes to cooking for the sick, some heaven-gifted old woman, who doesn't know a calorie or a vitamin from a thyroid gland, can put it all over them. As a matter of fact, the education of anyone who prepares food, and especially for finicky, fault-finding unreasonable sick people, is never complete up to the day when they go to their reward. We must supplant the medical training with the culinary and push it to the limit, if we want to keep our patients in a more or less contented condition.

And now for the final factor — the doctor not the surgeon. What about him and his charges? Is he getting more than he used to get? He surely is receiving about three times as much and still as a class, is poorer, proportionately, than he has ever been. It doesn't look right to see him blamed by the people and cartooned by the funny man for the high cost of being sick. Can anything be done to remove this idea and to show the people that they are not being unfairly used? I believe it can be done, and would suggest the following plan:

The Specialists

It is fairly evident that, under present conditions, there is a dearth of practitioners in the country districts and a superabundance of specialists in the cities. The claims of this latter class and their assurance in asking specialist's fees are no doubt reasons for the high cost of ailing. With little or no knowledge of general work, the specialist assumes the right to tell a patient that certain things (in his own specialty, of course) must be done before he can be benefited or cured. Having extracted his fee and the patient not improving, the latter is sent to another specialist, with a similar result, and so the poor devil goes the rounds—to the neurologist, the psychiatrist, the optometrist, the aurist, the internist, the urologist and so on, each exacting a fee and sending him to another specialist.

Is there a remedy? Surely, but it will never be carried out in America! Notwithstanding, here it is: See that every graduate gets a diploma which entitles him to all the privileges of a general practitioner. Keep him at this kind of work for at least ten years, when he can, at least, become sufficiently familiar with the bodies of men, women, children and babies to know what they are. His practice can be with the urbanite or the bucolic; they are the same, physically, and the physician will have his hands full to learn one-tenth of what there is to know about humanity. However brilliant the doctor may be, he ought to have this knowledge to make him a safe adviser.

Then, unless research work takes his time, let him have the right to take up special work, after passing an examination in his specialty. The public will then know, when they go to see him for their ailments, that they are in the hands of a qualified and experienced man instead of at the mercy of a self-styled specialist.

The matter of fees could be regulated by a committee of their own or by the examining board. The ignorant laity, prone to believe anything they are told, would automatically be protected; professional men would seek country practice, where they are greatly needed; and the cities would be relieved of a class of men whose chief idea is to receive the hero-worship of the masses and, incidentally, good, fat fees.

16 W. Stephenson St.

Paleopathology

(A Doctor's Hobby)

By F. B. Young, M.D., *Gering, Nebraska*

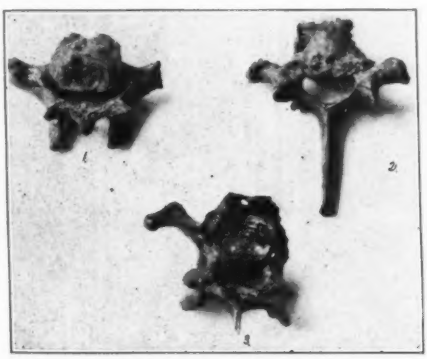
EVERY doctor should have a hobby; and a combination of early training, an interest in general biology, the natural interest of a physician in pathology, and an unusual opportunity combined to make mine paleopathology

Paleopathology may be defined as the science of the diseases of ancient and extinct organisms. Diseases are found in the fossils, both plant and animal, of all geological ages. This subject is deserving of more attention than has been given it; there having been but scattering allusions to it in all of medical literature. Roy L. Moodie, Ph. D., of the University of Illinois, has published a book and a number of articles dealing with it, but otherwise the literature is very scant and scattered.

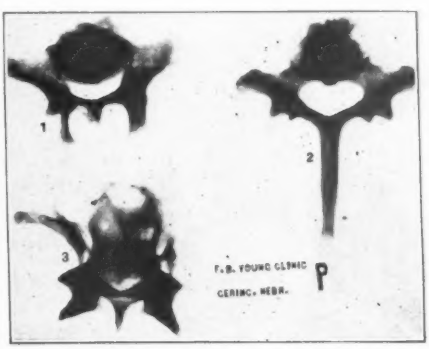
Bone conditions of animals are the ones that have been considered most thoroughly from a pathologic viewpoint, as the bones are the parts of the organisms that are preserved in sufficient quantity to be of greatest value for such study; though among the earlier lower invertebrates, pathologic material has also been found.

A much larger amount of vegetable matter is obtainable, but there has been less study of it, because there is less interest from the standpoint of comparative pathology, which, in the animal fossils, forms a very interesting point of view. In this connection it may be said that the plant life of early times showed many of the infestations of fungi moulds, bacteria and parasites, that are found today. In fact, there is abundant ground for comparison of the known diseases of early times with those of today, in both plant and animal fossils.

The following table will serve as a short



Vertebrae of Saber-Tooth Tiger (*Smilodon Californicus*), showing a Tuberculous or Destructive Type of Arthritis. (1) Lumbar; (2) Cervical; (3) Thoracic.



X-Ray Prints. Vertebrae of Saber-Tooth Tiger (*Smilodon Californicus*), showing a Tuberculous or Destructive Type of Arthritis. (1) Lumbar; (2) Cervical; (3) Thoracic.

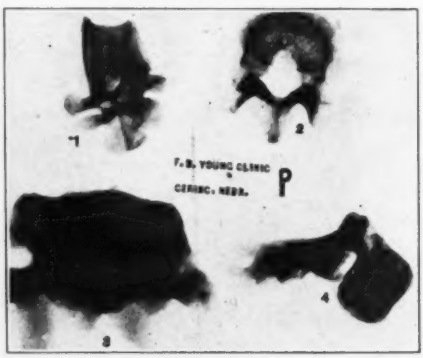
ERAS	PERIODS	DOMINANT ANIMALS
Psychozoic—Age of Man (250,000 to 1,000,000 years).	Recent Pleistocene	Man The beginning of definite human existence.
Cenozoic—Age of Mammals. (4,000,000 to 12,000,000 years).	Pliocene	Pre-human and early human types. The higher mammals—the horse, camel, ape, monkey, cat dog, and other highly organized mammal types.
	Miocene	Beginning of higher mammals.
	Oligocene	The rhinoceros, titanotheres and other lower mammals.
	Eocene	Primitive large mammals, last of large reptiles.
Mesozoic—Age of Reptiles (8,000,000 to 15,000,000 years).	Cretaceous	Primitive small mammals; marsupials; toothed birds.
	Jurassic	Dinosaurs, flying reptiles, turtles, fish.
	Triassic	Dinosaurs and other early reptiles.
Paleozoic—Age of Amphibians, Fishes and Invertebrate (12,000,000 to 20,000,000 years)	Permian	Amphibians, reptiles, insects.
	Carboniferous	Amphibians, fishes, insects.
	Devonian	Amphibians, fishes (shark-like).
	Silurian	Armored fishes, lung fishes, insects.
	Ordovician	Armored fishes, nautilids, trilobites.
	Cambrian	Brachiopods, trilobites, corals, sponges, molluscs.
Proterozoic—Age of Unicellular and very simple Multicellular Organisms. (30,000,000 to 65,000,000 years)	Algonkian Neo-Laurentian	Worms, radiolaria, bacteria.
Archeozoic — During which Era no evidences of Existent Life have been Found. Life evidently began during this time. (45,000,000 to 1,600,000,000 years)	Paleo-Laurentian	No fossils.

and convenient review of paleontology and will give an outline of the various eras, periods, and dominant animals.

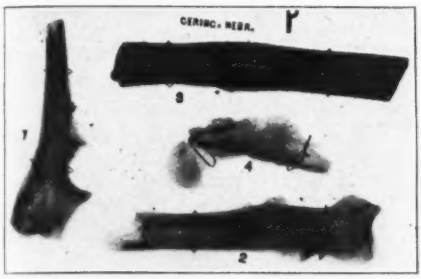
The above scheme is adapted from various sources and is, of necessity, very incomplete and schematic. For more detail in this subject the reader is referred to any textbook on paleontology.

Many computations as to the length of each era have been made, the latest and most accurate being founded upon the radio-active transmutation of uranium to lead. The figures given are the extremes

Vertebrae of Saber-Tooth Tiger, showing Productive Arthritis of the Arthritis Deformans Type. (3) Fused Lumbar Vertebrae; (4) Dorsal Vertebrae with Spur Formation; (5) Fused Dorsal Vertebrae.



X-Ray Prints. Vertebrae showing Productive Arthritis of the Arthritis Deformans Type.
1 and 2.—Lumbar Vertebrae from Pleistocene Man.
3.—Lumbar Vertebrae, Fused, of Pleistocene Saber-Tooth Tiger.
4.—Lumbar Vertebrae from Saber-Tooth Tiger.



X-Ray Prints of Bone Tumors.
1.—Exostosis of Olecranon Process of Ulna; Giant Wolf (*Canis Dirus*), of the Pleistocene. (This is a rather common condition in several species of early wolves and seems to arise from repeated injuries. It is somewhat similar to the ossifying bursitis seen in working men).
2.—Myositis Ossificans, Radius of Giant Wolf of the Pleistocene.
3.—Exostosis on the Tibia of a Miocene Camel. (This specimen is heavily mineralized and the formation does not show well. The other specimens in the series have been preserved in the asphalt pits of southern California and show excellent results on x-ray examination. Much detail is lost in transferring to print).
4.—Tumor of Femur of a Giant Wolf. (This tumor has occurred in a young individual and suggests sarcoma in many ways).

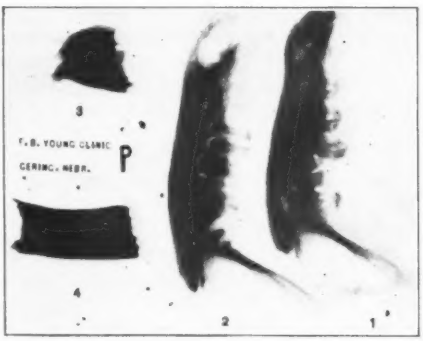
suggested by various authorities. In the course of time, full investigation will give more accurate data along these lines.

In the Proterozoic Era, when only invertebrates were in existence, are found instances of symbiosis, parasitism, and infection. It has been suggested that parasitism

Dental Pathology.
1.—Incisor Tooth of small Camel (Pliocene Period), Shows Apical Absorption, Caries, Osteo-Dentine Formation; Pyorrhea.
2 and 3.—Maxilla and Mandible of Wolf (*Porthocyon Pugnator*) of Pliocene Period; Impacted and Deformed Teeth; Pyorrhea; Caries.
4.—Impacted Deciduous and Permanent Teeth of Rhinoceros (*Diceratherium Cookii*), Pliocene Period.
5.—Impacted Deciduous and Permanent Teeth; Rhinoceros (*Aphelops*), Pliocene Period.
6.—Normal Tooth of *Aphelops*, for comparison with No. 5.

and disease conditions developed from a situation of symbiosis, as it can readily be seen that, in such a state, one of the co-operating organisms might become a non-cooperating or parasitic growth at the expense of the other.

In the early parts of the Paleozoic Era, conditions of diseases remained as in the preceding one; but when vertebrate life developed, in the Ordovician Period, there began to be the various bone diseases and injuries; and when teeth developed there began to appear the various deformities and diseases of teeth and their surrounding tissues. These were not exactly as are those



X-Ray Prints, Dental Pathology.
1 and 2.—Mandibles of Giant Wolf (*Canis Dirus*), Pleistocene Period, showing Caries, Pyorrhea, Osteomyelitis.
3.—Premolar of Pleistocene Horse; Root Absorption, Caries, and Wear Due to Age.
4.—Molar of Pleistocene Horse; Caries.

of the present day, as the histology of the animals of that era was different from that of the dominant animals of the present, resembling more the histology of the cartilaginous fishes of our day. The same observation applies to the reptilian forms which followed the fishlike animals.

With the development of mammalian life, in the Cretaceous Period of the Mesozoic Era, and its greater development in the whole of the Cenozoic Era, we find disease conditions very similar to, or identical with, those we have today. It will be seen that there is a continuity of pathologic conditions from the earliest geologic periods to the present, in so far as the anatomic and histologic conditions permit.

If any reader has the opportunity to engage in this line of study he will find it well worth while. It will take him afield in the search for material; will cause him to visit museums with an increased interest; will bring him into contact with a wonderful class of men, the paleontologists; and

above all, from a professional standpoint, it will increase his interest in pathology and cause him to study the harder.

In a paper of this length it is impossible to go into details, but the accompanying photographs and roentgenograms will give an idea of the scope of these disease conditions and the manner in which they occur.

Rheumatic Fever

(A Review of the Work of Small and Birkhaug)

By Charles Rudolph, M.D., New York, N. Y.

IN MY article on the etiology of rheumatism, published in the December, 1928, issue of *American Medicine*, I mentioned that several investigators were able to isolate the streptococcus which causes rheumatic fever and that there is at least a good chance that the solution of the acute rheumatism problem may soon be found. This would be doubly important, as the solution of this problem carries with it to a large extent, the solution of the heart disease problem.

Acute rheumatism occurs between the ages of 10 and 30; seldom before 8 or after 40 years. Here salicylates exercise a specific influence and have a powerful effect on the joint affection. They have a marked effect in reducing the temperature, in relieving pain and in cutting short the attack.

The acute rheumatism of childhood differs materially from that of adults, in that it is much less severe and that the affection of the joints is usually slight and the child does not appear to be very ill. But it is the damage to the valves of the heart, by rheumatism in childhood, which lays the foundation for much chronic disease later in life. Salicylates are of less service in rheumatism of children than in that of adults, as they do not exercise any influence in arresting the cardiac inflammation to which children are especially liable.

Dr. James Craig Small, professor of bacteriology in the University of Pennsylvania, was able to isolate a particular streptococcus from the blood of persons suffering with acute rheumatic fever, and can grow this coccus, the *Streptococcus cardioarthritidis* (probably identical with that isolated by several other workers, but called by other names) and use it on laboratory animals to make an antitoxin with which he cures patients in a way that has every resemblance to the way diphtheria antitoxin cures diphtheria.

My article previously mentioned brought me in direct contact with the leading investigators of the etiology of rheumatism and I have now to modify to a certain extent what I wrote about Dr. Small's claims. Here is one of Dr. Small's letters to me.

Dr. Charles Rudolph, Jan. 21, 1928.
New York, N. Y.
Dear Doctor Rudolph:

Your information as expressed in your recent letter is substantially correct. The serum affords protection against the efforts of the toxins of the rheumatism coccus, and vaccines of the same organism build up more permanent resistance which appears to allow the patient to rid himself of the effects of the infection. We do not believe that the germs are killed off, but the effects of their presence in an individual are nullified.

These products will be available for general use by physicians in the near future. Due announcement will appear in the medical literature.

Thanking you for your letter, I am,

Very truly yours,
(Signed) J. C. Small.

Dr. Konrad Birkhaug, professor in the Medical College of the University of Rochester, also submitted to me some of his important treatises on rheumatic fever; one published by the *Journal of the Society for Experimental Biology and Medicine*, 1927, XXIV pp. 541-545.

I am still of the opinion that the cultures isolated from rheumatic fever patients by Small, Birkhaug and others, are identical. Dr. Birkhaug, however, I believe was the first investigator who has ever demonstrated the production of a soluble exotoxin which holds a definite relationship to rheumatic fever patients' hypersensitivity toward bacterial substances. He has been able to demonstrate the presence of a free toxin from his cultures. A recent article by Kaiser

(*J. Infect. Dis.*, 1928, Vol. 42, Jan., p. 25) gives the results in 800 children that have been tested with toxins from Birkhaug's culture.

Dr. Small, in his article in *Am. J. Med. Sci.*, 1927, Jan., p. 101, does not mention a free toxin or antitoxin, but calls his product antiserum, which is made like all antiserums, by injecting the culture of bacteria into an animal. The majority of readers might not be particularly interested in arguments over the credit that each should have for the work he has done. There is enough honor for every one of them. But those who are interested in a most scholarly general criticism of all streptococci studies, in relation to focal infection, may consult, Dr. W. L. Holman, *Archives of Pathology and Laboratory Medicine*, 1928, Vol. 5, pp. 68-136.

The first indication of a toxin-producing streptococcus associated with rheumatic fever was obtained by Birkhaug, in March, 1926, when an unusual strain of a nonhemolytic and nonmethemoglobin-forming streptococcus was repeatedly isolated from blood cultures taken from a five-year-old girl admitted to the Strong Memorial Hospital (connected with the University of Rochester in which Birkhaug is a professor) on March 23rd, 1926. The patient was found to be ill with acute rheumatic fever, endocarditis, myocarditis, pericarditis and pleurisy. On March 31st the patient expired and at autopsy the clinical diagnosis was confirmed. From the vegetations on the mitral valves a streptococcus was isolated, identical biologically with the organism obtained from the blood cultures during life. The strains of the streptococcus isolated from this case of rheumatic fever were found to produce a potent, soluble, thermostable toxin. The unusual biologic characteristics of these cultures aroused Dr. Birkhaug's interest, as to whether or not the production of a soluble toxin was a constant feature of such microorganisms.

In a recent and careful statistical study of 317 cases of rheumatic fever, Mackie[1] found that 80 percent gave a definite clinical history of focal infection of the upper respiratory tract. Extensive studies in the bacteriology of rheumatic fever, by a large group of other investigators, have demonstrated that the clinical and pathologic picture in rheumatic fever is a constant and almost specific entity—one that is invariably linked up with some part of the circulatory system—and that the damage to specific tissues in the body may be the end results of a constant production and fixation of bacterial toxins, absorbed from foci, such as infected tonsils, adenoids, sinuses, teeth and even the gastrointestinal canal, and transported into the general circulation, with consequent insults to the circulatory tissues and articular surfaces.

The Shick test in diphtheria, the Dick test in scarlet fever and a similar test demonstrated by Birkhaug[2] in erysipelas, are generally considered to indicate the existence or susceptibility to an attack of diphtheria, scarlet fever or erysipelas, when such tests give positive skin reactions. In order to satisfy his own curiosity about whether or not a positive skin reaction with his toxic filtrate affords an index of susceptibility to the syndromes encountered in an attack of acute rheumatic fever, with particuar reference to the acute polyarthritic phenomenon, Birkhaug, on February 13, 1927, injected 1 cc. of his sterile and purified soluble toxin directly in his left wrist joint. A similar dose was simultaneously injected intramuscularly in the right forearm. He developed a "wonderful" arthritis!

He describes the results in detail, presenting a typical picture of acute rheumatic fever involving all the large joints.

In January, 1927[3], Dr. Small called attention to a streptococcus which had been isolated from cultures of the blood and of the pharyngeal exudate of patients suffering with rheumatic fever. This microorganism was designated *Streptococcus cardioarthritidis* and described as a new species, on the basis of its distinctive cultural and immunologic characters. Extended experience with a large number of strains of this microorganism has further emphasized the constancy of these distinctive characteristics.

A monovalent antiserum was prepared from a strain of *Streptococcus cardioarthritidis* and used in the treatment of patients suffering with rheumatic fever or chorea. The observations on a small number of patients treated with the antiserum were presented as a preliminary report of the effects of such treatment. The microorganism was also shown to be capable of producing lesions of the heart and joint structures when inoculated into rabbits.

The clinical material for the study was rendered available to Dr. Small through the action of the medical staff and medical director of the Philadelphia General Hos-

pital, by providing a special rheumatic fever service, consisting of two eight-bed wards. These wards were especially equipped and provided with an efficient personnel for the care and treatment of patients under observation. Dr. Small's last report[4] is based on a study of 232 patients, 137 of whom have been observed in the special wards. It has required more than a year of experience to arrive at the extremely small dosage of the soluble products of the microorganism now employed.*

Improvement follows the administration of the antiserum in rheumatic fever. This becomes more and more significant as the number of patients treated increases. It has been observed in the acute arthritis, endocarditis, myocarditis, pericarditis, pleuritis, pneumonitis and subcutaneous nodules of rheumatic fever.

The full culmination of the effect of adequate dosage of the antiserum presents as its most striking feature the very apparent "detoxifying" of the patients. The tense, anxious, pallid face takes on a relaxed, brightened appearance within twelve to twenty-four hours, even before the tenderness and swelling of the joints has disappeared. Spontaneous pain in the joints is first eliminated. The tenderness and swelling are next in order to disappear. Frequently one is confronted with the condition of swelling of multiple joints, in a patient who had received serum twelve to eighteen hours previously, with no spontaneous pain or pain on motion and only very slight tenderness remaining on firm palpation. In other instances the patient will appear perfectly comfortable and non-toxic, even though physical examination yet reveals loud grating, pericardial frictions, pleural rubs and patches of consolidation within the lungs. These are observations which do not appear in tabulations of joint symptoms nor in pulse, temperature and respiration charts. They are far easier to observe than to describe.

The purpose of this brief paper is to call the attention of practitioners to the work which has recently been done in connection with rheumatic fever, in order that they may be in a position to utilize the newer discoveries when occasion arises

*A patient who shows a loss in weight from week to week is receiving doses which are too large, Dr. Small declares. Proper dosage promoted a gain in body weight.

1.—Mackie, T. T., *Am. J.M.Sc.*, 1926, 1 and 2, p. 199.
2.—*Proc. Soc. Exper. Biol. and Med.*, 1925, 23, p. 201.
3.—Small, J. C.: The Bacterium Causing Rheumatic Fever and a Preliminary Account of the Therapeutic Action of its Specific Antiserum. *Am. J.M.Sc.*, 1927, 173, 101.
4.—Small, J. C.: Rheumatic Fever. *Am. J.M.Sc.*, May, 1928. No. 5, Vol. 185.

6 Chatham Square.

Allergic Mucous Colitis*

By W. L. Beecher, M.D., *Chicago*

Associate in Medicine, Loyola University Medical School; Attendant in Allergy, Chicago Postgraduate School and Hospital Clinic

THE frequent occurrence of the disease variously known as mucous colitis, mucous colic, mucomembranous colitis and, sometimes, chronic colitis, is sufficient reason for calling attention to allergy as the underlying cause in some, if not all, of the cases. By allergy is meant that broad group of phenomena due to altered reactivity of the body cells to foreign substances, usually but not always proteins.

"Mucous colitis is a condition in which the patient suffers with various symptoms of disturbance of the stomach and bowels and with regular or periodic discharge of mucus or mucomembranous shreds or casts of the bowel."

This definition, taken from Osler's "Practice of Medicine," indicates that this disease is more than a colitis, as the small intestines and possibly the stomach may be involved. It is said to occur from five to ten times more frequently in women than in men, and more frequently between twenty and fifty years of age; but it occurs at all ages and may even be found in children. It is much more prevalent among those in the better stations of life. The patients may be thin and wasted, but are of all types. All tend to become depressed, hypochondriacal and intro-

*Read before North Shore Branch, Chicago Medical Society, Feb. 5, 1929.

spective; to take great interest in their condition and to make minute examination of their symptoms.

Signs and Symptoms

The characteristic finding is the mucus. It may be passed alone or with the feces; in jelly like masses or in the form of pseudo-membranes; or as complete casts of the bowel. If the small intestine is the principal site of the trouble, the mucus is intimately mixed with the feces, which are sticky, adhere to the vessel, have a mirror-like surface and are apt to be semiformed —rarely mushy, as in cases where the colon is the principal site. In the milder cases, membranes may be found only by irrigation of the colon.

The subjective symptoms found in mucous colitis vary greatly. In a mild case there may be only a slight and more or less transient distress and tenderness along the colon, with a slight mucous discharge. In the more severe case there may be fever, colicky pains and a copious discharge of mucus and casts. Very often the patient more or less constantly suffers from constipation, has chronic abdominal discomfort and at times passes membranes, but there are no definite, clear-cut attacks. Other cases have definite attacks, at intervals of even weeks and months. Unformed masses of mucus may be passed in the intervals between the acute attacks. The passing of membranes is usually associated with pain, but occasionally the only symptom is the passing of membranes.

The constipation, which is of the spastic type, is most obstinate when the pain is the worst. The spasm of the colon between attacks is less intense and may even disappear. During an attack there is commonly a dull, aching pain or discomfort, which may increase at intervals to paroxysms of colicky pain and may be accompanied by nausea and vomiting. The pain is most frequently felt in the left side in the region of the splenic flexure and along the descending colon, where the contracted gut can sometimes be felt as a hard cord, at times containing masses of hardened feces. Pain and tenderness in the region of the cecum and along the ascending colon are less frequent. The attacks of pain when on the right side may closely simulate appendicitis or biliary colic.

True gall-bladder disease is rather frequently associated with mucous colitis. The passing of mucus spontaneously or as a result of treatment generally gives relief, though in some cases it seems to increase the discomfort for some time. Nearly all the sufferers with mucous colitis complain of flatulence and abdominal distention at some period of their illness.

Many theories have been advanced as to the cause of the disease, the most generally accepted one being that it is a secretory neurosis. It is true that nearly all of the victims are of the type we describe as neurotic, but it is a question whether the neurotic condition is the cause or the result of the disease.

Analogies to Asthma

Evidence suggestive of allergy as a probable cause is to be found in Tice's "Practice of Medicine"[1] which says, "There may be a history of eczema, asthma, urticaria, angioneurotic edema and erythema multiforme." All of these conditions are now recognized as frequently, if not always allergic. Strümpel is reported as designating mucous colitis as "asthma of the colon." A. F. Hurst[2] draws attention to the relation of mucous colitis to asthma. He points out that spasm of the colon and the pain due to it is analogous to the spasmodic contraction of the bronchial tubes in asthma; that the cases with the increased mucus are like the asthma cases with excessive secretion; that both mucous colitis and asthma occur in the same type of individuals and that both may occur in the same person or they may alternate. Also that, in a family, one member may have asthma and another mucous colitis.

Among the reports to be found in the literature we have that of Edward Hollender[3] who reported five cases. These cases gave allergic reactions, by skin tests, to a variety of foodstuffs, all were relieved when the offending foods were eliminated from the diet and all had recurrences when they were taken again. Andressen[4] reports seeing three cases of chronic ulcerative colitis due to food allergy. In 1922, W. T. Vaughn[5] reported a single case due to allergy. He[6] has recently reported seven other cases in which allergy was found to be a prominent factor. H. W. Gentles, in a personal communication, reports two cases due to food allergy and that both were relieved by elimination of the offenders.

Case Reports

As a further contribution to the allergic etiology I wish to add the following case reports:

Case 1.—Female. A victim of hyperesthetic rhinitis, as well as mucous colitis. Patient was under test to discover the cause of the rhinitis. A variety of foods gave reactions, among which was coffee. This was eliminated and the colitis cleared up at once. The rhinitis was apparently due to lettuce and celery.

Case 2.—Female. Tests were being made to discover, if possible, an allergic factor causing an eczematoid eruption on the hands. A reaction to coffee was found and it was eliminated from the diet. The patient reported that, while there had been no change in the skin condition, there had been a complete relief from her mucous colitis. Since that time every attempt to take coffee brings on an attack within an hour or so.

Case 3.—Male. Was hardly able to attend to his work. He had been hospitalized and was on a strict diet. On testing he was found strongly sensitive to milk and less so to wheat. Elimination of milk and wheat brought relief at once. A short time later there was a slight recurrence, which was apparently traced to asparagus. In this case no reactions at all were had by the scratch tests but, in spite of this, intradermal tests were made and positive reactions were obtained. The patient reports that milk seems to be the sole cause of the pain. Since he does not entirely avoid wheat, he still has some symptoms.

Case 4.—Female. Mucous colitis associated with gall-bladder disease. After many tests the patient was found sensitive to wheat. An attempt to eat a larger amount of wheat than usual, as a test, brought on a severe attack. Reduction of wheat to a small amount brought considerable relief. Medical attention to the gall-bladder has made this patient reasonably comfortable.

Skin Tests

The allergic diagnosis is carried out in the usual manner, by means of skin tests. While scratch tests should be made first, for reasons of safety, it will be necessary, to make intradermal tests in most cases. If neither the scratch nor the intradermal tests enable us to discover the offender or offenders, it is often possible to do so by means of the socalled elimination diets. These diets take much time and much patience on the part of the sufferer and should be resorted to only when other methods fail.

A complete series of tests must be made in all cases. When reactions are obtained it must not be forgotten that they are only clews, and their relation to the disease must be determined by the clinical method of elimination from the diet of the foodstuffs indicated as the probable cause. Even if the condition is relieved and remains clear for some time it is not proof that we have the real cause. We must then reproduce the condition by adding the food to the diet, and we must be able to again clear up the condition by elimination of the offenders. As in asthma, so in this condition, we may at any time find that the patient has developed a new sensitization which may cause a recurrence of the trouble.

Treatment

The determination that allergy is an etiologic factor in a case alters the treatment somewhat. The dietary restrictions are indicated by the findings, with this qualification; that a harsh, coarse diet will mechanically irritate a mucus membrane that is reacting in an allergic manner.

As in other allergic disturbances, we are frequently in doubt as to which of the various reactions points to the substance most responsible for the disturbance. Should it be proved that the cause is some food easily avoided, then the problem is quite simple. If, on the other hand, we find as the offenders such foods as wheat, milk and eggs, it becomes a more difficult matter. With these foods as offenders desensitization must be attempted, because it is impossible to avoid them permanently. Unfortunately, desensitization is not always so successful as we would wish and it may not last; therefore we must expect a relapse in some cases. We must also resort to all methods which we know by experience lessen the allergic irritability. It is impossible to outline in advance all the steps necessary in the treatment of a case, any more than in any other complicated condition. Each case must be individualized and such changes made in the treatment as circumstances indicate. The general line of treatment, as usually recommended, is very useful as a palliative. Any local pathologic condition should be corrected and all focal infections cleaned up, if possible.

References

1.—Tice's "Practice of Medicine": Article on Mucous Colitis, by B. B. Vincent Lyon.
2.—"Constipation and Allied Disorders", A. F. Hurst, 1919. Hodder & Stoughton, London, England.
3.—Edward Hollender: *Amer. J. Med. Sc.*, Oct., 1927.
4.—*Arch. Int. Med.*, Page 95, Vol. 41., Jan., 1928. (Discussion of paper on Chronic Ulcerative Colitis).
5.—*Virginia Med. Monthly*, Sept., 1922.
6.—*South. Med. Journ.*, Page 894, Vol. 21. Nov., 1927.

25 E. Washington St.

THE SEMINAR

CONDUCTED BY

MAX THOREK, M.D. (*Surgery*)

GEORGE B. LAKE, M.D. (*Medicine*)

[NOTE: Our readers are cordially invited to submit fully worked up problems to the *Seminar* and to take part in the discussion of any or all problems submitted.

Discussions should reach this office *not later* than the 1st of the month following the appearance of the problem.

Address all communications intended for this department to *The Seminar*, care CLINICAL MEDICINE AND SURGERY, North Chicago, Ill.]

PROBLEM NO. 7 (SURGICAL)

Presented by Dr. Max Thorek, Chicago

(SEE CLIN. MED. AND SURG., JUNE, 1929, *p.* 404)

Recapitulation: A man, 67 years old, whose history was unimportant, developed difficulty in swallowing food, with a sensation of pressure in the lower, left chest and back. This grew worse until he was able to swallow only liquids and very soft foods and lost 30 pounds in weight.

Fig. 1.

Physical examination showed nothing significant except that the fluoroscope revealed a constriction at the middle of the esophagus, with dilatations above and below (see Fig. 1). The administration of atropine relieved his symptoms to some extent.

Requirement: Differential diagnosis and treatment.

DISCUSSION BY DR. J. R. SMITH, WARSAW, MO.

The physiologic effect of the treatment with atropine clearly defines the cause—simple stricture of the esophagus—and differentiates it from a more permanent (tumor) or malignant condition, and so long as the treatment produces favorable conditions I would continue it and watch results. The stricture may give way completely without surgical interference.

The dilatation is a natural result and would continue to grow larger if allowed to restrict the passage way. Relieving and relaxing the sphincter muscles allows Nature to resume her work and the patient to regain a normal condition.

There *could* be a possible malignant state developing, but if relieved entirely with the treatment given, his life will be saved.

I had a case of an old gentleman, 70-odd years old, who had a stricture of the esophagus at the cardiac end and who had had it for years. He could sit down and eat a hearty meal, get up from the table and step to the door and simply open his mouth, bend forward and empty it completely, return to the table and repeat the feat, *ad libitum*. This stricture allowed a sufficient amount of liquid food to filter through into the stomach to maintain life and a fair degree of health.

Here is something worth remembering—atropine. Had it ever entered my mind I should have used it in this old case, and I believe there was our stumbling block—the lack of application of known facts. We know the effect of atropine in the eye; here the same remedy was applied for a similar effect, and produced results that many have overlooked.

SOLUTION BY DR. MAX THOREK, CHICAGO

This time I am rather disappointed at the meager number of discussants that have entered into the analysis of this important case of obstruction of the esophagus. The only one who expressed his opinion on this important case was our good friend Dr. J. R. Smith, of Warsaw, Missouri.

However, I regret to state that his diagnosis of "simple stricture of the esophagus" proved to be erroneous. He based his opinions on the relaxation of the gullet under the administration of atropine. He is absolutely right, nevertheless, in suggesting a continued treatment with atropine, as he justly states, as long as the patient continues to improve.

Unfortunately in this instance, the case proved to be one of carcinoma, in a rather advanced state at that. I have done on the man a Kader-Senn operation, and we are feeding him through the gastrostomy opening. He is gaining in weight and feeling, as he expresses it, "fine." How long this is going to continue, no one can foretell for we are face to face with a desperate condition. Anyway, what has been accomplished thus far is very gratifying, and we have prolonged the man's life and made him more comfortable.

Incidentally, a near relative of this patient was brought into the American Hospital, two weeks ago, with an exactly similar condition. She is also in the hospital, at the present time, having undergone a Kader-Senn operation. She also is improving. The diagnosis in the last mentioned case is carcimoma of the middle portion of the esophagus.

I am in full accord with Dr. Smith's suggestion of the great diagnostic and therapeutic value of atropine but, of course, where a cancerous condition exists atropine, as can readily be seen, is a useless proposition.

As to the diagnosis of these conditions, one must be very much on the lookout, and make definite and determined attempts to differentiate between cancerous and syphilitic stricture of the esophagus. Do not forget to look rigorously for a recently developed hard gland in the supraclavicular region. If found, it points definitely to cancer. There is no connection between the size of the cancer and the extent of the glandular enlargement. Sometimes a bunch of glands as large as a fist may be found at autopsy, and a very small growth is discovered to give rise to the constriction. In such case one even finds a constriction so insignificant that it will permit even the largest of sounds to pass. On the other hand, there are cases in which no enlargement at all is to be discovered in the supraclavicular glands, and one finds an enormous cancer of the esophagus.

In the absence of enlarged glands, with a history of lues, particularly when other tertiary signs are present, it speaks strongly for syphilis.

From the clinical point of view, the cause of the disease points toward the underlying pathology. A syphilitic stricture may develop more quickly than a cancerous one, but once having formed it does not increase continuously like a cancerous stricture. Another point of importance, a syphilitic stricture is usually not attended by the spontaneous pain which is seldom absent in advanced cancer.

In some cases a diagnosis is rendered easy by esophagoscopy. A trained man can remove, in that manner, a section for microscopic examination.

The percentage of syphilitic disease of the esophagus is so insignificant compared with cancer of the esophagus that, in a man of advanced years, who is a victim of stricture of the esophagus, you have in all probability a case of cancer of the food pipe. Of course this dysphagia should be scrupulously investigated and a diagnosis aimed at. We must never forget to keep in mind diverticula of the esophagus. They are amenable to treatment by modern surgical methods. Then again, cardiospasm strongly steps into the foreground as a diagnostic possibility and should be kept in mind. Such cases will yield to the treatment suggested by Dr. Smith.

Please remember the appearance of the x-ray shadow. The borders are irregular in cancer and often exhibit a conical process. In cardiospasm, on the other hand, they may be circular or conical, but the edges are always sharply defined.

Sarcoma of the esophagus is very rare, and its diagnosis presents great difficulties.

Besides syphilis one must keep in mind strictures following the imbibition of corrosives, peptic ulcers of the lower part of the esophagus and extrinsic causes, such as an inflammatory mass around the esophagus, must be seriously considered.

Diseases of the mediastinum may give rise to pictures simulating cancer of the esophagus. Keep in mind also not to pass a sound at the first complaint of painful deglutition. If you are dealing with a cancer of the esophagus you may pass a tube through an ulcerated area and cause the death of the patient. Another point, do not forget to keep in mind the possibility of the existence of an aneurism. Your Wassermann test will aid you greatly. The spinal fluid examination is important. Above all the fluoroscopic examination, not the anteroposterior view, but in the left oblique position, will clear up for you the diagnosis and point in the right direction as to diagnosis and treatment.

It has been pointed out that it is of utmost importance to study the type of dysphagia. For instance, if your patient complains of a constant expectoration of saliva, in the early stages of the disease, you naturally are forced to the conclusion that the lesion is in the upper part of the esophagus. On the other hand, if the patient takes some fluid, which he immediately vomits up, as soon as it is swallowed, and it has not undergone fermentation, you are in all probability dealing with a diverticulum of the esophagus. Again, if the difficulty in swallowing has set in gradually, you are dealing with a constriction of the esophagus lower down.

A simple test may aid you: If you ask the patient to swallow and he begins to cough after the first few gulps, the obstruction is in all probability high up. But if he can imbibe the greater part of a glass of water you have offered him, the chances are that the obstruction is low down. This much for diagnosis.

Treatment, of course, will have to be directed to the type of lesion you are dealing with. The prognosis depends upon what you are facing or confronted with. If syphilis is present, if an aneurism is the cause, if mediastinal tumors are responsible for the disease, if contractions of the esophagus are producing the trouble, the treatment will have to be directed toward the alleviation of the conditions enumerated. Again, if a diverticulum is present, the direction of procedure is clear. In operable carcinoma of the esophagus the technic is very difficult and offers the only hope for alleviation (mortality high).

Being face to face with a desperate condition the case should be presented to the relatives of the patient point blank, proper therapy prescribed and let them take their choice.

Radium as an aid may be of value in some cases. In inoperable cases gastrostomy is the procedure, of course.

Discussion by
Dr. Harry Solomon, Radium-Therapist Of the American Hospital, Chicago

Regarding the effect of radium on cancer of the esophagus, this therapy may be used as palliative. The condition being a desperate one, there may be something gained and little lost. According to an authority of the French school, for cases such as are being discussed here, one long exposure of radium is advocated, followed by a series of four or five exposures of five to eight hours duration each, given at intervals of two or three days. The first effect of this treatment is usually immediate improvement in swallowing, but this is due entirely to the mechanical dilation of the stricture by the pressure of the tube. A few days later the congestion attending upon the reaction causes swelling of the stricture and renders dysphagia more acute. When the congestion passes off a certain amount of fibrosis follows which may reduce the size of the growth and this may lastingly increase the size of the lumen. Intra-tumoral radiation should never be used because; first, the promotion of necrosis and sloughing, as a result of such radiation, will prove fatal in these cases, and second; foreign bodies, e.g., glass emanation seeds and filtered seeds of the nonemanation type, in the thin walls of the esophagus, are highly objectionable and are fraught with danger. Statistical results show that radium in esophageal cancer is merely palliative.

Problem No. 9 (Surgical)
Presented by Dr. Max Thorek, Chicago

The case I would like to present to you today, refers to a woman forty years of age, married, a stenographer by occupation. There is nothing of importance in her family history.

She comes to us for relief of a fracture of her left arm, and tells us that she has been under the care of a physician for a

Fig. 2

number of weeks, who reduced the fracture, splinted the arm and took an x-ray picture of it, but she finds that the results are not satisfactory to her. Of course not! Look at the photograph! Figure 2 will give you an idea of just how much displacement there is. An x-ray picture taken at the hospital (See Figure 3) shows the position of the bone fragments at the time she was admitted.

Fig. 3

Upon physical examination we find that the broken ends of the humerus are freely movable. There is a complete paralysis along the entire distribution of the radial nerve. The patient insists upon relief.

Now the question arises, what is the best procedure, keeping in mind that the fracture is already eight weeks old; that the paralysis has continued for that time; and that the patient uses her arm in her business (typewriting)?

I might add that her Wassermann test is negative, her kidneys are functioning normally, and her general condition is satisfactory. She has never been pregnant. Confronted with these facts, I ask you to suggest the procedures to accomplish the desired results.

Pharynx and Esophagus

When a foreign body lodged in pharnyx or gullet resists all your attempts at extraction through the mouth, it should at once be removed through the neck.

Never try to push such a foreign body down into the stomach.

Always use a sound in the gullet if possible, and with it push the gullet up into the wound when doing a cervical esophagotomy.

Never use non-absorbable sutures when sewing up a wound in the esophagus.

Bismuth milk and the x-ray give a good deal of information about esophageal stricture or diverticulum.

Remember that gradual dilatation is very effective in treating stricture of the esophagus in children. It may be necessary to do a gastrostomy in order to sustain life while dilating the stricture.

The occasional passage of bougies should be continued indefinitely.

Never use force when attempting to pass a bougie through a stricture.

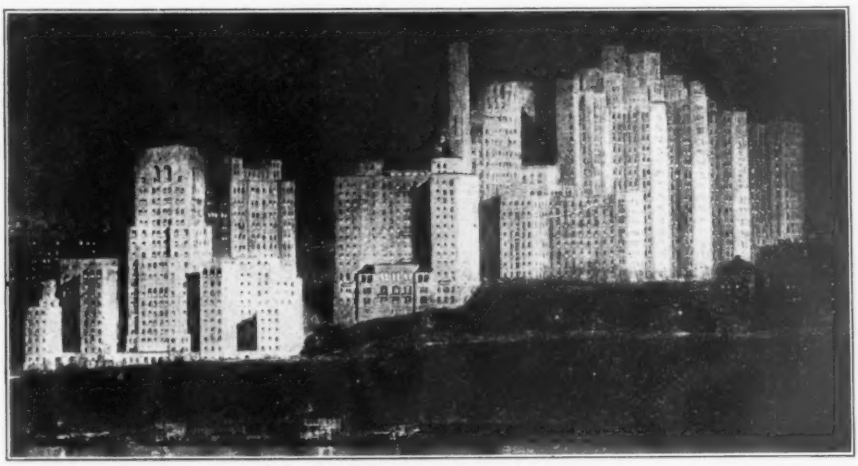
Do not pass a stomach tube without a gag between the patient's teeth, or without being satisfied that the patient has not an aneurysm of the aorta.—Bernay's "Golden Rules of Surgery."

CLINICAL NOTES AND PRACTICAL SUGGESTIONS

The Presbyterian Hospital, New York Medical Center

WHILE hospitals are no novelty, in this country, a project the size of the Medical Center, in New York, is decidedly out of the common. Here are housed, practically under one roof, two teaching institutions (The College of Physicians and Surgeons and the School of Dental and Oral Surgery, of Columbia University) and eight institutions for the care of the sick—(1)* New York State Psychiatric Institute and Hospital, (2) Neurological Institute, (3) Nurses' Home, (4) Harkness Pavilion (for private patients), (5) Presbyterian Hospital, (6) Sloane Hospital for Women, (7) Squier Urological Clinic, (8) Babies' Hospital, and (9) Vanderbilt Clinic (for out-patients).

A serious effort has been made, in the Presbyterian Hospital, to retain the personal contact with patients, which is so often lost in a large institution. To this end, each floor is organized and equipped to function independently as a 64-bed hospital, with its own staff of physicians, nurses and social service workers, who follow the patients when they go out to the outpatient clinic or to their homes, and take charge of them if they are admitted to the hospital again.



The Medical Center at Night.

The complete institution consists of twelve of these small hospitals, piled one on top of another, with the general surgical service (ten independently equipped oper-

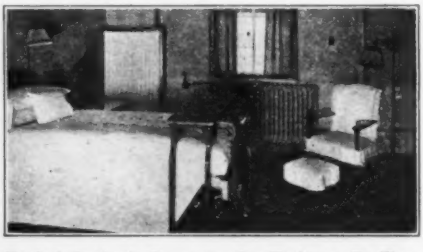
*Numbers refer to the picture of the Center and read from left to right.

The Cromwell Ward, Which Has Been Decorated to Answer Questions Pertaining to the Psychology of Color in the Care and Treatment of the Sick.

ating rooms, including the McCosh Amphitheater) on top of that; the recreation rooms still higher up; the physical therapy department (under the charge of Dr. Norman Titus) in the basement; and a direct connection, through an 11-story "axis," with the research department of the College of Physicians and Surgeons, where all complicated laboratory examinations are made.

McCosh Operating Amphitheater, with 149 Seats. There is a radio phone attached to each seat, so that the heart beat of the patient on the table can be plainly heard by every student. One of the features of this operating room is the x-ray viewing machine, so that the spectators can follow the operation as it progresses. The tiling in this room is green. This does away with glare and is easier on the eyes of the attending physicians.

The small hospitals are the latest word in modern equipment in every department (notice, for example, the over-the-bed tables in the ward and private room pictured here) and many interesting experiments are being carried out (such as decorating and furnishing one ward, throughout, in shades of green, to study the psychic effects on patients), which would be impracticable in smaller institutions.

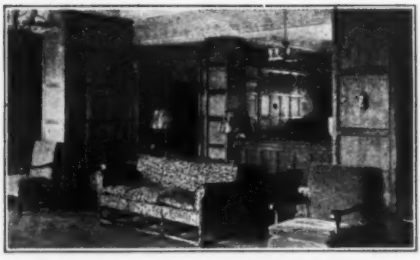


Typical Patient's Room in the Harkness Pavilion.

Private pay patients have their own building, with a separate entrance, reception room (very luxurious—see picture), laboratory service, dining room and kitchen. One floor is fitted up as a hotel, for the convenience of relatives and friends who want to stay near patients. There are suites of private offices for physicians who prefer to conduct their practices here, rather than down in the city.

The commissary department prepares and serves 5,000 meals every day, and 142 persons are employed as food handlers alone.

This huge institution occupies a commanding position, overlooking the Hudson River, far up-town (168th Street) and of-



The Lobby of the Harkness Private Pavilion.

fers facilities for medical service, teaching and research on a scale of unexampled magnitude and completeness.

It will be extremely interesting to watch this undertaking rather closely, in order to determine whether mass-production in these lines produces better doctors and nurses and more promptly cured and contented patients than those turned out by the smaller schools and hospitals or those which resulted from the more individualized teaching and care of the past.

GEORGE B. LAKE, M.D.

Chicago.

An Injustice to Dental Graduates

IT WAS unfortunate for the men who entered a Grade A dental school in 1920, as then the requirements did not call for two years of college preparation, as now is the case. The first two years of the course were spent in medical subjects, such as anatomy, physiology, bacteriology, chemistry, etc., and dental subjects were few. In the last two years a great deal of stress was brought to bear on subjects truly dental in character, but still medical subjects were brought to our attention.

It was my good fortune to receive a hospital position, where the medical men treated me with the same respect they treated their fellow internes and it was like one large family. The physicians sought my advice and I in turn sought theirs on many cases.

After a year or two, I felt the need for a medical education, and then the most surprising things took place. Dentistry, to be carried on properly, should be associated with medicine and the old days are gone when dentists were considered good if they were good mechanics, but after relating my experience it looks as though we still are in that former class.

I made applications to about six leading medical schools, and I was turned down by all, due to the fact that I was not credited with college work, preparatory to the course of medicine. My four years in dentistry did not even amount to a credit of college English or French. One university informed me that a pharmacist was better prepared to enter medicine than a dentist. One school would not address me as a doctor, and some did not even answer my letter.

Is a dentist better prepared to enter medicine than a man with an Arts degree? If not, what good were our first two years at college, studying medical subjects? Does the college man know, when entering the medical school, what or where the medulla oblongata is? It may be a gland, as far as he is concerned. Does he know the action of arsenic or adrenalin? No, to be sure he does not; and yet we poor dentists without college work would have to spend years in college before even getting to the front steps of a medical school.

Dentistry should, by all means, be a special branch of medicine, but how can it be when schools of medicine treat our members as nothing more than high school graduates?

EDWIN C. FOPPERT, JR., D.D.S.

Hazelton, Penna.

—

[If such an injustice as this is practiced by our medical schools, it is time that the dental profession, as a body, brought the matter to their attention. It seems ridiculous to deny that the Doctor of Dental Surgery is as well prepared to enter upon the study of medicine as is the Bachelor of Arts.

This matter of locating the dentists in our scheme of health conservation is by no means so simple as it may appear on first thought, and we shall be happy to give space to some sound and reasonable discussions of the problem, with constructive suggestions.—ED.]

What School?*

ONE of the most effective ways to handicap a child for life—and one frequently practiced by shortsighted parents—is to send him to a school where conditions and methods work against the development of his natural assets.

*From editorial department, *"Children, The Magazine for Parents."*

And this is a mistake being made more easily and more constantly with the growth of a complicated system of specialized education in America. Today, like the diagnosis of a fever, the selection of a school cannot be done by mail or by anyone who does not know and understand the child and his character thoroughly.

How many do really know their children's needs? The best intentioned parents may easily place their child in the wrong environment.

If he is shy, a small school doubtless would be the best place for him to overcome this trouble; if he is inclined to be "bossy," nothing in the world will do him more good than to come up against an army of his peers. Is he lazy or given to day dreaming? Then a school which knows how to keep him interested and very busy is the wisest choice. Does he like to do things with his hands? Be sure then to inquire about the work-shop of the school.

Is your child musical or artistic? Then you must find a school where the muse is given a royal welcome. All these and more factors of your child's physical, mental and emotional make-up must be considered if you are to choose wisely for him.

Points which parents should be careful to check, aside from the fundamental ones of food, safety, recreational facilities and cheery surroundings, are those of cultural benefit, the school library, its museum and its musical and social activities.

EVA V. B. HANSEL.

Intestinal Obstruction—Delayed Operation

(A Case Report)

CLIFFORD L., aged 8; German-American; born and lived his whole life in Iowa; family history excellent.

I saw him first on June 23, 1923. Previous history excellent. He had had severe measles about 6 weeks previously, but no physician was in attendance for the measles; tonsillitis a week before I saw him, then about gone. Shot-like cervical adenitis in both sides of the neck.

Since the attack of measles he has had numerous attacks of abdominal cramps, involving the whole belly. The mother says that another physician saw him a week ago and suspected appendicitis. The cramps have been worse during the past 6 to 8 hours and he vomited twice this day, but not before. Temperature 97.6°F., pulse 80; respiration 20; leukocytes 6800; urine normal.

The pain is worst at the umbilicus, with slight tenderness all over the abdomen. Two enemas were given, without result. Appendectomy was advised, but the parents refused consent. Treated by heat and codeine and no food. During the next few days he passed much green mucus and the bowels were very loose.

June 27.—Patient was practically well. My diagnosis was *colitis*, probably from infection starting in the tonsils.

July 28, 1925.—There was a recurrence of similar symptoms. A laparotomy was performed for *acute catarrhal appendicitis;* no drain was used; good recovery.

Following this the boy had numerous attacks of pain in belly, similar to that of June, 1923, but without the loose, green, mucous stools. He was examined by several physicians, but no definite diagnosis was agreed upon. Colitis, adhesions and hysteria were considered.

About Sept. 25, 1928, he had pain of the type described and vomited. Enemas produced normal stools, but no relief. He was brought to the hospital and treated by heat and enemas, with slight relief. The vomiting ceased, but pains of milder type persisted. No food was given except glucose solution and lemonade.

After three days, a diagnosis of intestinal obstruction, supposedly from adhesions was made, but operation was refused until October 2, at which time the patient was toxic and dehydrated. Vomiting recurred; at first water, then brown intestinal contents. No fever was present.

Operation was insisted upon as a last resort, preceded by dextrose, 5-percent, 1000 cc. intravenously. The small bowel was found distended and dark, about 3 feet above ileo-cecal valve. There was a large cyst in the mesentery, shaped like a dumbbell and surrounding the small gut, but not adherent to it. The cyst was removed and the bowels moved in a few hours. There was pus drainage for 3 weeks. A good recovery has been made so far.

D. A. HERRON, M.D.

Alta, Iowa.

—

[This case illustrates the danger of delaying surgical intervention when it is definitely indicated. This child recovered, but

many patients, under the same conditions, would die.

In view of this history, one wonders if the appendectomy was justified. Certainly it did not cure the symptoms for which relief was sought. Unfortunately this operation is frequently done when there are no clear-cut indications.

We feel that, when a physician recommends an operation, and the patient or the family refuses, he is justified in quitting the case completely, for his own protection. —ED.]

Influence of the Constitution on Puberty*

THE appearance of the first menstruation, in women, varies with the physiologic and pathologic condition in each case. However, puberty is influenced also by climate, race, social condition and hereditary factors. Everybody knows the precocity of Jewish women. It is also known that southern women menstruate earlier than those of northern countries; that the latter experience their maturity toward the twentieth year, at an age when the women of the warm countries are already beginning to fade. Women living in cities usually mature earlier than peasants. It happens that women working in the fields do not have their menstrual periods during the hard work of the summer, but menstruate only during the winter months.

Familial heredity influences the date of the first menstruation, and it is here that the influence of the entire endocrine system must be taken into account. In this respect, Tandl has stated that women with short legs and voluminous breasts commonly mature early.

As a general thing, the first menstruation is late in girls of hypoplastic make-up; in those with asthenia; with hypo- and hyperthyroidism; in epileptics; in fact, in girls who present troubles of metabolism. Almost half of the victims of uterine fibroma do not menstruate before the age of seventeen.

When speaking of precocious puberty, naturally one does not include the socalled menstruation of the newborn. This is merely bleeding from the genital organs, which frequently follows a difficult labor and commonly delivery on the chair (*accouchement par le siége*). Precocious puberty refers only to cases of early menstruation in which the cause lies within the girl herself, and it is associated with the development or with modifications in the secondary sex characteristics.

As a matter of fact, we know but little of the reasons that bring about an early first menstruation. Certain authors (Halban, Berblinger) attribute it to endocrine influences. Very often, in these children, it has been possible to find tumors in the gonads, in the adrenals or in the pineal gland. Lenz thinks, in such cases, of a hypophyseal tumor. Kussmaul believes that hydrocephalus plays an important part.

It is admitted that tumors of the adrenals and of the gonads affect the sex characteristics in an identical or very similar manner. However, it has been observed that ovarian tumors cause precocious menstruation in young girls, but often bring about amenorrhea in adult women.

Askanazy thinks that the embryonal tissue of the pineal gland tumors can bring about an early development of the secondary sex characteristics. His opinion is based upon the researches of Starling, who found that, after the injection of embryonal tissue, there follows a rapid growth of the mammary and genital glands. It is, therefore, the constitution of the embryonal tissue of the tumor that is important.

Other authors maintain, on the contrary, that precocious puberty is brought about by hypofunctioning of the pineal gland (Marburg, Berblinger). As a matter of fact, they believe that the epiphysis normally inhibits the development of the secondary sex characteristics; that a tumor destroys the gland and then the signs of premature puberty are seen to manifest themselves. Perhaps the influence of hydrocephalus in the appearance of precocious puberty must be attributed to an atrophy brought about by compression.

At any rate, experimental investigations are not conclusive. Some authors have observed, in animals, a very rapid development of sex characteristics after extirpating the pineal gland (Foa). Others have obtained identical results following the ingestion of epiphyseal substance (MacCords). Our information is still very inexact with regard to the etiology of these cases of precocious maturity.

*Translated from the French (Le Progrès médical, 10 Mars, 1928, No. 10, p. 390) by H. J. Achard, M.D.

On the other hand, the different forms of sexual precocity have long been studied by Halban, who differentiates three classes:

A.—Isosexual precocity: That is, the more or less complete appearance of secondary sex characteristics during the first years of life.

B.—Heterosexual precocity: A child of female sex possesses sex characteristics of the male sex, as they are observed, ordinarily, only after puberty or in inversion.

C.—Iso- and heterosexual precocity: The coexistence of male and female sex characteristics, which are developed normally and precociously.

In the first case, it is a question of precocious puberty which is not complicated. The individual is either male or female. In the two other cases, on the contrary, the precocious puberty is said to be complicated, since the child possesses certain hermaphrodite characteristics.

It may be said that precocious development is much more frequent in girls than in boys. Out of 398 cases studied by Mayer, 327 were in girls and 71 in boys. In order to explain this fact, Knable, Laulaine and Kohn express the opinion that the ovary normally tends to hermaphrodism. Borchardt explains the fact by the frequency of adrenal tumors in girls, while boys more commonly acquire tumors of the pineal gland (Berblinger). Little is known on the later fate of the subjects of precocious puberty. However, Sacchi has observed, in one case, the retrogression of the symptoms after the tumor had been suppressed. In the case of a boy of nine, who had a malignant tumor of a testicle, castration was followed by the disappearance of certain intellectual signs which were abnormal for so young a child.

Precocious puberty may be responsible for precocious conception (Wehefritz). Reuben and Manning have published 30 cases of pregnancy in girls less than 15 years of age, among whom 28 had menstruated.

It is not known how the menopause develops in these girls who have matured prematurely. However, it is not rare to see these women age prematurely and die early. Their later fate depends always on three conditions: first, the nature of the primary tumor, if one exists; second, the early ossification of the epiphyseal cartilages; third, the early involution of the organ.

Precocious ossification of the epiphyseal cartilages is consequent upon the premature development of the genital organs. Under these conditions, growth is terminated early. The individuals are large and stocky, with short limbs and exaggerated sex appetite.

The psychic development does not always correspond to that of the body. Sometimes the subjects maintain the mental status of the child; sometimes, however, the intelligence is greatly developed, and this is often the case when pineal tumor exists (Frankl). Then again, the intellectual development may correspond to that of the body, and in these cases one may, with Askanazy, speak of a psycho-genital precocity.

In conclusion, it seems interesting to point out the analogy that exists, from a pathogenic viewpoint, between sexual precocity of children and the secretion of milk in adult women who are not pregnant. In these women, one frequently finds ovarian tumors, which may be benign or malignant (Pfannenstiel). However, while, in the child, ovarian tumors bring about precocious puberty, they impede menstruation in the adult. On the other hand, the mammary gland and the ovary are antagonistic, the proof of which is afforded by the physiologic amenorrhea during lactation. It must be admitted that, in the adult with ovarian tumor, there is a hypofunctioning of the genital glands; while in the girl with precocious menstruation there is ovarian hyperfunction.

PIERRE DUHAIL, M.D.

France.

Oral Infection and Systemic Disease

NORMALLY, the mouth contains a larger variety of bacteria, and also in greater abundance than any other place in the body. Among the bacteria that are to be found in the oral cavity, in their order of importance, are the streptococcus, pneumococcus, staphylococcus albus, aureus, and citreus, and fusiform bacilli; also various kinds of streptothrix and spirochetes are present. The streptococcus and pneumococcus are the most important, being more frequently associated with lesions than are any other types of organisms.

Inasmuch as the oral cavity harbors more organisms than any other place in the body, it is only natural in making a diagnosis to consider the teeth and asso-

ciated structures as the source of infection. Concerning conditions that continue to persist even after the removal of oral foci, there are other factors to consider—conditions in general which have a tendency to affect the whole system or some part of the body, and especially the oral cavity.

The manifestations of a disease are largely controlled by the following factors:

1.—General health and resistance of the individual or the resistance of the tissue cells to bacterial invasion and the increased virulence of the invading organisms.

2.—Immunity.

3.—Diet.

4.—Calcium metabolic disturbance (endocrine glands).

Body health is in direct proportion to the resistance of the individual. Oral and systemic health are interdependent with one another. An unhealthy mouth will inevitably take its toll from some other part of the body and manifest itself in the form of some particular type of disease. We know, by evidence accumulated from cases in our daily practice, that the removal of oral infection, determined clinically and by x-rays, has definitely resulted in the elimination of certain systemic ailments, most common of which are neuralgic conditions, complications of the eye, ear, nose and throat, rheumatic conditions, infectious arthritis and gastrointestinal disturbances.

The common occurrence of these cases makes it apparent that the practice of dentistry demands a more intensive preparation in the sciences particularly concerned with this biologic phase of our profession, in order to diagnose and treat such conditions properly. Likewise, we have seen systemic conditions producing manifestations in the oral cavity, some of which are symptomatic of the disease in question, the most common of these being oral pathologic conditions due to gastro-intestinal disturbances.

The physician, in his examination of an individual and the treatment of disease, should have sufficient knowledge of the oral cavity to be able to determine if there is any possible condition there that might be directly or indirectly responsible for the systemic ailment under consideration. The dentist should acquaint himself sufficiently with a basic knowledge of medicine to be able to recognize the possibilities of the various conditions that appear, in his oral examination of his patient, in causing secondary infection elsewhere in the body.

There must be medical and dental co-operation. The progressive physician recognizes this fact. The progressive dentist (stomatologist) appreciates this necessity.

ALBERT GINNS, D.M.D.,
Worcester, Mass.

Geriatric Aphorisms

1.—Do not change an old person's diet unless it is absolutely necessary.

2.—Allow the old man his usual amount of tobacco or alcohol.

3.—Senile patients should be kept out of bed, no matter what the illness may be.

4.—The aged will often sham illness to create sympathy.

5.—Old married couples should not be separated in institutions.

6.—An old person should walk after a meal and not be allowed to doze in his chair.

7.—Belladonna will aggravate incontinence of urine in the aged. Prescribe strychnine.

8.—After surgical operations, allow the aged patient to sit in a chair as soon as possible.

9.—Fecal impaction in the aged may cause serious trouble and may simulate many diseases.

10.—An old man should not marry a young girl. Cases of death are very common a few months after such marriages.

11.—Lumbago and sciatica may be due to fecal impaction causing pressure on the sacral plexus of nerves.

12.—Blood pressure should be taken in both arms, as there is often considerable variation.

13.—Lack of exercise will cause harm in senility. Exercise will often improve digestion and peristaltic action.

14.—Keynote of geriatrics: keep the patient out of bed and keep his gastrointestinal tract cleaned.

15.—Many an old person has been saved by active catharsis. If you do not know what to do for the patient, give him a cathartic.

16.—Work for the aged is necessary. Idleness plays mischief in old age. The old man who retires usually dies soon afterward.

17.—Encourage the aged all you can. Plan what they shall do several months from now and they will believe you mean what you say.

18.—The senile heart is one which clearly shows that it will not stand much strain. The treatment is for the patient to slow down his activities.

19.—The cardiac impulse gives little indication from a diagnostic or prognostic point of view, in senile patients. The rate should be taken at the heart.

20.—Sexual activity after sixty, if increased, as with an old man who marries a young girl, predisposes the man to angina pectoris, cerebral hemorrhage and edema of the lungs.

21.—In many instances, symptoms due to prostatic hypertrophy clear up when the intestinal tract is cleaned. For this purpose, saline laxatives and colonic irrigations should be employed.

22.—Alcohol, to its full physiologic effect, is often a means of saving an old person's life. Give it in ounce doses every two or three hours, until a red spot appears on each cheek.

23.—An old person who is ill in bed, presenting indefinite symptoms, will gradually fail and there seems no hope for him; many times a dose of castor oil, followed by a colonic irrigation, will make a complete change in the patient in a few hours.

24.—Beware of senile pneumonia. It gives little evidence of its presence. The temperature may be normal, as well as the pulse rate. If the patient is rapidly failing and the respirations increased senile pneumonia should be suspected.

MALFORD W. THEWLES, M.D.
New York. (In *Med. Rev. of Rev.*)

The Hypodermic Syringe

WHEN a new invention is announced it often seems foolish, to many people, and they wonder why it was not thought of before. One might think something of that sort about the hypodermic syringe but, as a matter of fact, it was not discovered all at once, but was a gradual development.

Before me lies one of the first hypodermic syringes made—a crude instrument of hard-rubber, leather and brass. It was given to me by an old doctor, whose days on earth were growing short, as a souvenir of him and of the history of the instrument. If ever there was a septic piece of apparatus, this is one; but, mechanically, it will give an injection as well as the most modern type. My friend had used it when such a procedure marked a man as being in the vanguard of professional progress.

In 1836, Dr. Lafargue, of France, used a trocar for depositing morphine subcutaneously. In 1839, Drs. Taylor and Washington, of New York, placed a solution of morphine in a small anal syringe, made an incision in the skin to admit the nozzle, and injected the solution hypodermically.

In 1840, Dr. Alex Wood, of Edinburgh, first described the Ferguson syringe; and in 1850, Dr. Charles Hunter made a cutting point on the nozzle of his syringe.

Fig. 1

In 1853, Dr. Pravaz, of Lyons, France, made a separate needle with a slip joint. In European countries, hypodermic syringes are often spoken of as "Pravaz syringes," even today.

In 1856, Dr. Fordyce Barker was given, in Edinburgh, a Ferguson syringe, and from that model, George Tiemann, of New York, constructed the first hypodermic syringe ever made in the United States.

These instruments began to be common about 1860. They were made of glass and hard-rubber, sterling or German silver or other metal or celluloid. The pistons were of leather. The first all-metal syringe, with the piston ground in, was made by Codman and Company, of Boston, in 1894.

The most radical change in the hypodermic syringe came with the invention (in 1896), by Carl Scheider, of Paris, of the first Luer, all-glass instrument. Shortly after this an American patent covering a similar device was issued to W. T. Georgen, of New York, who sold it (with all necessary formulas) to Becton, Dickinson and Co., in 1898. The 1 cc. size sold, at first for $60 a dozen—they now sell for $12!

One disadvantage of the Luer-type, all-glass syringe is that its needle has a tendency to slip off the nipple at the most inopportune moments. This has been obviated in the Luer-Lok Syringe,* shown in Fig. 1, which has a device to hold the needle in place, as well as a black line at the proximal end of the plunger, so that its position in the

*By Becton, Dickinson & Co.

barrel can be readily seen and the dosage given accurately checked.

Hypodermic needles are made by drilling a hole through the center of a smooth and carefully selected billet of carbon steel, four inches in diameter and four feet long, and then drawing this, cold, through reducing dies, until the desired size is obtained—a 25 gage needle has a diameter of 4/1000 inch. The entire process requires forty-five operations.

These modern instruments of precision are a tremendous advance over their clumsy progenitors.

M. G. PRICE, M.D.

Mochseim, Tenn.

—

[We have become so accustomed to having accurate and elegant instruments provided for our use that we fail, most of the time, to remember that the earlier generations of medical men had to do without them, and to give them proper respect for the splendid work they did with very crude appliances, but with keen and highly trained senses. It is well that we should be reminded of these things, from time to time.

The development of parenteral medication had to wait upon the perfecting of instruments by means of which drugs could safely and pleasantly be injected under the skin or into the muscles or veins.

Today our armamentarium in this line is excellent. Syringes are made to hold 10, 20, 30 or more cubic centimeters of fluid; accurately graduated instruments ("tuberculin syringes") are made for giving very small doses with precision and for injecting insulin. We even have, now, a "breech loading" syringe, for giving medicines hypodermically, under emergency conditions.

Truly, the world has moved in 70 years! —ED.]

Handling and Storing X-Ray Films

GENERAL SUGGESTIONS

1.—In all rooms where x-ray films (cellulose nitrate base) are stocked, handled or filed, smoking should be strictly prohibited and conspicuous "NO SMOKING" signs posted.

2.—A metal can should be provided for all waste negatives and film scrap, and at no time should these be permitted to accumulate and lie around on tables, benches or floor.

3.—It is best, both for the matter of freshness of films and reducing fire hazard, that the stock of unexposed films should be kept at a minimum. Such stock should be kept in a cool, dry place out of the way of ordinary room traffic, in a metal box or can.

4.—In rooms where films are filed or handled there should be no flames or any other than standard electric fixtures. All open lamp bulbs should be protected from breakage by suitable guards. A hand fire-extinguisher should be in each room where films are handled. Darkroom and other doors should be arranged so as to make egress from such rooms easy. It is also desirable, if possible, to have such rooms protected by automatc sprinklers.

5.—Film negatives should be filed as soon as possible in heavy manila envelopes. The storage of film negatives in bulk without enclosures should be prohibited, and in all places where films are handled or stored there should be no storage of other inflammable materials and no litter or accumulation of waste paper.

6.—Illuminators should be so designed that the diffusing glass is not hot to the touch and negatives set up for viewing should be confined to those actually being inspected.

7.—If it is necessary to keep an active file of films for a current period of about a week in the actual x-ray room, these should be kept in a metal container. Such a file should be limited to about 50 lbs. of films.

8.—Films should not be stored in the basement of any establishment.

FILING BULK FILM NEGATIVES

In hospitals, where files of films in bulk must be kept, the following requirements should be met:

1.—The file room should be at the top of the building;

2.—It should be of fire-resisting construction;

3.—It must have a direct outlet to the outer air—140 square inches of vent for every 1,000 pounds of film stored (1,000, 14x17 inch negatives weight about 118 pounds);

4.—There should be a Class B, self-closing fire door at the communication with the rest of the building;

5.—It should be protected by automatic sprinkler heads.

If the number of films to be stored is

relatively small, they may safely be kept in heat-insulated, metal safes (not more than 500 pounds to a safe), vented directly to the outside by metal pipes.

EASTMAN KODAK COMPANY.
(Abstract)

Another Bloodless Delivery

ABOUT six years ago I delivered a child (the mother was a multipara), with no hemorrhage except from the umbilical cord. There was no subsequent hemorrhage and very little lochia. The child was normal in every respect.

As the absence of bleeding was a decided surprise to me, I mentioned the matter to an elderly woman who was acting as nurse, and she informed me that she had seen two such cases previously, with no untoward results.

A. H. BELTZ, M.D.

Eldorado, Ill.

Sanitary Etiquette

AMONG the several modes of transmission of human disease, modern sanitarians have assigned a high place to personal contact. There are many serious and important diseases, known as contact infections, which are transmitted and propagated largely, if not exclusively, by personal contact. Such diseases include pneumonia, influenza, diphtheria, scarlet fever, measles, whooping cough, smallpox, chickenpox, mumps and the common cold. These are, of course, all germ diseases. Their method of spread is through personal contact between a person who harbors the infection and another who is susceptible to the same infection. In typhoid fever and some other diseases the person who harbors the infection need not necessarily be sick; he may harbor the infection as a carrier—and in some diseases the carrier is an important source of transmission.

These personal contacts may be direct or indirect—the more direct the more dangerous. Such contacts literally represent an exchange of bodily secretions or excretions between the persons involved. These contacts are far more common than most people realize; and under our modern complex social organization, especially in large cities, close personal contacts in a variety of ways are absolutely unavoidable. Some depend upon customs and usages difficult to break up, as, for example, inconsiderate use of the handkerchief with soiling of the hands, indiscriminate kissing, and hand-shaking. The Chinese custom of bowing and then shaking one's own hand is far more desirable, from a sanitary standpoint. There are a number of these contacts, however, which can not be defended on any grounds. They simply represent unhygienic manners. One of these habits is particularly reprehensible, and it is the habit of passing some article to another person after it has been wet with saliva.

In view of the prevalence of influenza, which is one of the important contact diseases, it is a good time to bring to public attention this habit, which is very common, easily avoidable and thoroughly condemnable from every standpoint. This is the habit of sticking one's fingers in the mouth before performing some action that involves another person. It is usually associated with the passing of some article to another person after it has been wet with saliva.

The prevalence of this practice is widespread. From limited observation, it would appear particularly common among those who have to handle paper of any kind; that is, paper which is piled in stacks or bound in books. But it is by no means confined to those engaged in such activities. With many persons it seems simply to be a form of nervousness, or a nervous bad habit.

A while ago some sanitarian, impressed with the undue prevalence of customs and habits involving an exchange of saliva among persons in their daily contacts, cleverly suggested, in order to visualize what was really going on, that we should imagine salivary secretions colored blue. He then, in imagination, followed a few individuals through a day of active existence. At the end of the day he tried to evaluate them chromatically and concluded that most of them would be found well spotted with blue.

In matters of this kind, education is far more effective than law. If people generally disapprove unhygienic habits, the public opinion will correct them speedily. Why condemn promiscuous spitting, unguarded coughing and sneezing and common drinking cups, if we continue to permit people to contaminate objects by saliva-moistened fingers? It is all of a piece and all should be condemned together.

The essence of good manners, is, after all,

consideration for others. This is applicable equally to social or hygienic good form. Our culture should keep pace with other progress.

U. S. PUBLIC HEALTH SERVICE.

The Physicians' Fellowship Club

(Some Practical Suggestions)

REGARDING the organization and activities of a fellowship club, I can tell you a few things that may sound oracular, but they are things that we have learned after six years of existence of the Physicians' Fellowship Club of Chicago. We were fortunate in having, as founders, men who believed implicitly in the undertaking and equalled Moody and Sankey in persuading other doctors to see the light.

At first we frequently discussed the question of fellowship, and tried to get the doctors to understand that they should not view one another as competitors, but as workers in the same vineyard; that there were grapes enough to go around; that every fellow should tend to his own picking and not waste his time and spoil his temper by being envious, mean and jealous because another toiler could work faster or have a better eye and longer reach for the choicest bunches.

In time this matter became clear to a sufficiently large number and the value of the principle so apparent that we seldom, now, say anything about it. It has become an established fact, like the Saturday night bath.

We never discuss scientific medicine. There is plenty of that in the scientific organizations. We discourage dissertations on interesting cases. The fellows, whom politeness compels to listen, may, for the time being, be without patients, and to hear of some other doctor having even one case causes irritation. You know that when business is bad it is a great consolation to learn that the other fellow is sitting idle.

To start a club, I would suggest that you get a few fellows who have the fraternal spirit, who are of different nationalties and religions, and form an organization. Then secure a state charter, to forestall useless overlapping. Hold meetings once a week, from October to June, and always have a program. Send your announcements regularly, and, if possible, mail them upon the same day of the week throughout the year. Your mailing list, in addition to paid membership, should include all members of your county or local society, also every prominent physician in the neighboring cities. An addressograph machine is necessary to success.

One of your missions will be to look out for proper legislation. In order to do this you must have publicity. You cannot afford to have any physician of prominence say that he never heard of your club. Start out to study, not to reform. Encourage extemporaneous speaking. The doctor is too often a sorry figure before an audience. Be careful to give the modest and retiring ones an opportunity to talk! The breezy ones will not have to be urged.

Your organization must be a neutral ground for any factions that may exist in your local or state society. You have nothing to do with the struggle for control in the medical society. The leaders, one and all, are working for the best interests of the profession, which is always the best interests of the public. They are sometimes misled and often misunderstood. We may very properly disagree at times with their methods, but we should be very loath to impugn their motives.

When you are considering questions involving wrongs in the profession that are maintained and supported by a few who profit, at the expense of the many, the speaker should always be a physician. When he has finished, ask each doctor in the audience to express his views. There is likely to be some one who will offer resolutions for the club to take militant action on every wrong that is discussed. See that all resolutions are referred to the proper standing committee, whose members will be able to exercise a more judicial scrutiny of its merits.

Be very particular about your bookkeeping and see that bills for dues are sent promptly. It is better to establish a fiscal year and prorate the dues, than to run it as subscriptions to magazines are handled.

Never forget that your club is an auxiliary to the medical society—that, while it may, as a result of free discussion and the resulting education, change medical thought and policies, it must not attempt to dictate. When it tries to do that, it becomes a hindrance to the interests of all physicians and will cease to exist. By all means keep your club democratic, for therein lies its strength.

Work hard for a large attendance but do not be discouraged by a small one. "A little leaven leaveneth the whole lump." Find a good secretary and *keep him on the job.* A president should not have more than two terms. Pass that office around. The woods are full of good presidents, but capable secretaries are rare birds.

It was and is the hope of the founders of the Chicago club, that its influence shall spread throughout the United States, until each state has a similar institution.

I hope that you will pardon me for so much gratuitous advice, but there are so many rocks upon which ventures of this kind may founder that a charted sea will add much to the safety of navigation.

EMMET KEATING, M.D.

Chicago, Ill.

—

[The Physicians' Fellowship Club, of Chicago, has performed an inestimable service, not only for that city, but for the whole state of Illinois. It has cemented ties of brotherhood, developed a sense of the importance of the economic side of Medicine, and exercised a profound influence upon the development of internal policies of medical organizations and upon legislation affecting the medical profession.

Every city of any size could profit by the development and activities of such an organization. Certainly there should be one in every state in the Union, preferably in one of the larger cities. There are now one or two other similar societies in Chicago.

Dr. Keating's suggestions are very direct and clean-cut, but we feel sure that he will be glad to answer any questions which may arise in the minds of any who may desire to form such a club. His address is 2758 Fullerton Avenue.—ED.]

Grades of Milk

IN CITY or country the quality of milk, whether raw, pasteurized, or canned, as it reaches the consumer, depends largely on the quality of the original milk. Therefore supervision and control of the source of supply are of the utmost importance. The production of clean, pure cow's milk of good quality and low bacterial content depends on the feeding, health and cleanliness of the cow; the cleanliness and health of the milker; clean utensils; the use of the small-mouthed milk pail; prompt, efficient cooling of the milk; and constant refrigeration until the milk is used.

Grading of milk, based on dairy scores and bacterial count, which has become universal in cities having the best milk ordinances, is one of the first steps necessary in the protection of the public food supply.

All market milk should reach the consumer within 48 hours after it is produced, for changes affecting its nutritive value and its purity are likely to occur as times elapses. Surprisingly little emphasis is usually put on the differences between stale milk and fresh milk, though it is obvious that milk dried or canned within a few hours after it is drawn is in a sense fresher than so-called fresh milk which may actually be three or more days old. Certified milk is supposed to reach the consumer before it is 24 hours old.

In large cities, or wherever else it can be obtained, certified raw milk or milk of grade A quality that has been pasteurized should be purchased for infants. In small cities, if the milk is not graded, information regarding dairies may be obtained from the local board of health. In towns and small communities, a visit to the dairy should be made by the householder personally. Bottled milk should always be used, as "dipped" milk, dispensed from a large container, is an unsafe food for young children. When milk is used on the premises where it is produced it should be kept in sterilized bottles or jars. The essentials of the care of milk, both in the dairy and in the home, are to keep it clean, cool and covered.

In general, only the milk of a tuberculin-tested, healthy, well-cared-for herd or single cow should be used. Herd milk tends to vary less in its character than the milk of a single cow, and is preferable for infants, if other conditions are equal. Milk relatively low in butter fat is generally better for infants, but the removal of 1 or 2 ounces of cream from the top of a quart by means of a cream dipper easily adapts milk of high butter fat content for their use.

It is very difficult to obtain a constant supply of raw milk in a state suitable to be fed to an infant, for even under the best conditions any milk may become contaminated accidentally. Milk fit to be used raw must be produced under conditions which insure rigid scientific inspection of the dairy, the cow, the milkers and the utensils, and

supervision of the care given to the milk and to arrangements which allow it to be used in a relatively short time after it is produced.

Certified raw milk can be obtained in large cities, but only at a price prohibitive except to families with incomes far above the average. In large cities, where milk has to be furnished to thousands of infants, where it has to be supplied from a large number of dairies of all sizes, so that adequate inspection is difficult, and where it has to be transported long distances and kept for a long time, ordinary raw milk is not a safe food for infants. All milk of any grade should be scalded, cooked in a double boiler or boiled before being used for infants, in order to destroy the germs ordinarily found present in milk.

DOROTHY REED MENDENHALL, M.D.
Washington, D. C

Medicine and Wealth

"GOD help the rich, the poor can beg." Thus wrote Elbert Hubbard a good many years ago. And I have pondered the saying many, many times since I first ran across it.

And always, as I grew older and began to realize the real values and compensations of human existence, I appreciated more and more the vast truth contained in this concept.

For if any man really needs the guiding, helping hand of God, it is the rich man who has been permitted by society to have and to hold so much wealth, *as a trustee*, for the present and future benefit of humanity.

To him is the great responsibility of leadership in the precise and accurate use of money so as to help, not hinder, human progress; to develop, not repress, moral stamina; to encourage by economic assistance and, at the same time, insist upon individual independence.

The picture of the perfect slave is the rich man, bound down by the shackles of his money to the wheels of the social organization, trying to pass the duties and responsibilities of his wealth over to foundations and charitable organizations, having long since learned the bitter lesson that the acquisition of wealth is far easier than its proper use.

Here comes in the connection between medicine and wealth. In the protection and promotion of health, these foundations and charitable organizations have found a ready and logical domain for the proper use of large amounts of funds with which they have been provided and for which they stand morally responsible.

The only question is the danger of debauching or demoralizing the work of the entire medical profession. To understand this danger better, we must comprehend, frankly and candidly, the merits and purposes of our work as physicians.

What is the great objective, the ultimate purpose of medical work? And by what practical means and methods shall this objective be realized? And how shall we amalgamate our work for this end with the other great social organizations, whether they be professional, industrial, economic, commercial or political? And, heedful of our objective, shall we allow such assistance from lay organizations indiscriminately, or strictly under the supervision of the profession?

These questions are fundamental, and must be completely answered by organized medicine, for the purpose of protecting our future work in the great struggle toward the proper progress of civilization. It is certainly a condition and not a theory that confronts us, and will require the most outstanding qualities of leadership ability to face the problem squarely and positively, looking to a solution that will insure for the future that the work of the profession shall be independent and unrestricted.

Medicine can use a great deal of wealth, often to great advantage; but so, perhaps, can an individual to whom money or its equivalent may be given; and yet it has been found true that the easiest way to prostitute an individual is to afford him the indiscriminate use of an unearned income. Is it the same way with a profession?

J. A. NORTON, M.D.
Conway, S. C.

—

[Dr. Norton has propounded some extremely important and far-reaching questions—problems which are national in scope and vital to the future progress and prosperity of medical men all over the country, as well as to the general scheme for the care of the sick and disabled.

Something is obviously wrong with our present arrangements, and it seems inevitable that some more or less radical changes are to come in the rather near future. Shall we, as physicians, bestir our-

selves and take a prominent part in determining and directing these changes? Or shall we sit snug on the ends of our spines and wait until some well-meaning but often completely uninformed laymen do something to us?

Constructive discussion of these problems will be welcome to our pages.—ED.]

The Preschool Child

WHEN the baby gets through his "second summer," even though he is still less than two years old, the mother usually feels that her worst job is over. After he passes his second birthday, she is likely to think that she can at last relax her vigilance a bit—that he has safely weathered the storms of babyhood and may now be left to "just grow," like Topsy. For this reason the period from two to six years—the preschool age—has been called the neglected age. Fortunately, the preschool child is less neglected now than formerly.

It is true that the child generally grows; but in the process of growing he may acquire many undesirable physical and mental characteristics, to an extent that may cause his parents to experience a shock when the report of his first physical examination in school is sent home. The period between two and six years of age is one of rapid development, and in what seems an incredibly short time the child may change from a normal to a defective one.

Because of the swift changes taking place between the period of infancy and the school age, it is important that the preschool child should have careful supervision. Physical examinations of school children have shown that defects are common in the lowest grades. Data obtained by the officers of the United States Public Health Service showed that enlarged tonsils and enlarged cervical glands were most prevalent at 6 or 7 years of age. The incidence of adenoids was high at six, with its peak at eight years. Speech defects were most numerous in the six and seven year old group, and decay of the teeth was widespread at seven. Other investigators have found that poor posture is common in children from two to six, and that many visual defects are found in children from four to seven. These facts all indicate that the preschool age is a fertile field for the growth of physical defects. The mother can scarcely believe that her healthy, normal baby has changed into a child who is about to enter school with several physical defects, some of which it may have been possible to prevent.

The early appearance of such defects emphasizes the necessity of frequent examinations of the preschool child. No child should be obliged to enter school suffering from any removable handicap. The Parent-Teacher Association and other agencies make strenuous efforts to round up the children who are preparing to enter school and arrange for their examination, so that as many defects as possible may be corrected before entrance. If, however, the parents of children of preschool age could be made to realize the importance of this period of growth and development, a tremendous drive just before school entrance would not be necessary, because health supervision would have been a continuous process from babyhood, and, hence, less defectiveness would be found at the time of school entrance.

The child between two and six years should have a physical examination at least every six months, and be taken to the dentist quite as often. The baby teeth should be well cared for, and any defect due to decay should be repaired. A good dentist will not extract these little teeth unless he feels obliged to, because he knows the child needs them for proper mastication, and that the second set of teeth will suffer from the premature loss of the first teeth. The dentists tell us that the jaw does not properly develop if the temporary teeth are lost, and hence there may not be room enough for the permanent teeth to grow out in their proper positions. Crooked, misplaced teeth not only spoil the child's appearance but interfere with proper chewing of the food.

H. S. CUMMING, M.D.,
Surgeon General, U. S. Pub. Health Serv.
Washington, D. C.

THE LEISURE HOUR

Liars and Lying*

By Dr. R. A. White, *Chicago*

I ONCE wrote an article on Bibliotherapy. A prominent surgeon wrote me that his only criticism was that I omitted any consideration of liars and lying. He assured me that lying was a disease. That, like any other disease, it was physically deleterious. The only difficulty about this perfectly simple theory is that there are so many perfectly healthy liars roaming about.

The closing sentence of the surgeon's letter aroused my curiosity: "You ought to be able to write a perfectly corking article on liars and lying." I wonder what the doctor meant. Was it a compliment or an insinuation that practice makes one an authority.

I may say modestly that I do possess some peculiar qualifications for properly considering liars and lying. I have all my life been more or less a devotee of the piscatorial art and a golfer in good standing for many years. I have made mental notes. Besides I am a preacher. The doctor underestimates my ability. Corking is too mild a word.

The old psalmist said in his haste, "all men are liars." The dear old psalmist exaggerates. There are only about fifty-seven different varieties of liars. This does not cover the human race. Space permits a diagnosis of but a few types of liars.

First, there is the liar for profit. This type lies with a calm deliberation that challenges your admiration. He believes the way to get business is to lie for it. His tribe is not large. Business is rather tired of this type. It is rather bromidic to say that "honesty is the best policy," but modern business is adopting that slogan. In the long run, lying does not pay in business. But the liar for profit is hard to cure. Nothing but death or Billy Sunday can save him from his sin.

Then there is the liar for vanity's sake. He is not looking for profit. He simply wants his friends to think well of him. He distrusts his native qualifications and makes up the deficiency by manufacturing a few specials out of his vivid imagination. He catches the largest fish, plays the eighteen holes under eighty (except in cases of hard luck), drives the best car, has desperate adventures that never happened, has the best wife and the smartest children, and cleaned up a hundred thousand in the last bull market. I admire the man who sticks up for his family, even if he does exaggerate a bit. The man who does not think his wife and children the best ever, deserves to be hung, drawn and quartered.

Altogether this sort of liar is not such a bad fellow. He lies without malice. He is usually cheerful, contented with himself and the world. I am not setting him up as an example for youth to follow or anything of that sort, you know; but, on the whole, I rather like him. He is preferable to the chronic grouch anyway. We humans must have a few vices, I suppose, and I prefer my friends to have this one, rather than several others which I refrain from mentioning. The vanity liar reminds us of ourselves in our weakest moments.

Then there is the liar by proxy. This is a side-line for many really very respectable people. It is a great convenience and is often a time saver. The business man sends out word that he is "not in." The maid is instructed to say that her mistress "is not in." Who is to shrive the soul of the maid? A lie filtered through the lips of clerk or maid loses some of its poison—becomes morally sterilized. The maid acts as a moral antiseptic. No one takes these lies very seriously. The unwelcome caller smiles sweetly. She is "on." She will return the

*Reprinted from *The Red Fez*, May, 1929.

compliment in a few days. Why worry?

Then there are lying children. I do not like the term in connection with children. The child does not lie in a moral sense—at least not at first. But anxious motherhood is seriously alarmed. The first lie of a child, especially if it is the first child, is a soul sorrow to a mother which she never quite forgets.

Now my dear, anxious mother, don't get panicky. The average child goes through this stage, just as it has measles or croup. Most child lying is just child imagination. The boy who told his father he had seen a thousand red foxes, finally, after a severe but discriminating cross examination, admitted that probably what he saw was a neighbor's red dog. Properly guided, this type of boy may become a writer of fiction—a great novelist. Real fiction is spiritual and moral truth, clothed in verbal exaggerations. To see a red dog is plain prose. To artistically multiply one red dog into a thousand red foxes scampering over the hills and through sylvan glades is fiction. The child who had lied, was solemnly told of the fate of Ananias and Sapphira, and solemnly replied that "he saw them die." He was not lying. He merely had a vivid imagination.

When a child lies to escape punishment or to conceal the theft of a neighbor's melons, he is merely invoking the method of his primitive ancestors, with whom lying was a means of self preservation. Really it is not serious. The average child grows out of it as he grows out of short pants.

An injudicious and undiscriminating parent may make a real liar out of such a child. Nagging, whipping, scolding may make the child feel that it is a real criminal, when it is merely doing what is psychologically natural.

Verily, it takes some common sense to be a successful father or mother! If you have a child that lies now and then, don't get panicky. The case usually does not require the birch, but an exercise of some horse sense.

Not all people are liars. But who of us shall throw the first stone?

"COLLEGIATE: Bumptious social immaturity, sometimes complicated by acute class consciousness." — Dean Christian Gauss, Princeton.

Visions and Tasks

The man with a vision and never a task
Is only a dreamer, with Life but a mask;
While one with a task and no vision in sight.
Is only a drudger from morning till night.

The man who is willing to do what he may
To brighten Life's journey, will have for his pay
The knowledge, within, that he's trying his best
To fulfill his duty, God doing the rest.

Be it ever so humble, there's nothing too small
To help out the plan of the Ruler of All.
Do the little things promptly, that come in our way,
To fill up the measure of Life, day by day.

The strands of Life's rope and the links of Fate's chain
Are fashioned and welded again and again.
The task of tomorrow will easier be,
By following after the vision we see.

The task and the vision should hand in hand go,
So, work all together, and then we will know
How the measure of living will averaged be,
When rewards of accomplishment find you and me.

HOMER CLARK BENNETT, M.D.
Lima, Ohio.

Conservation

A child in a rural family in Indiana was quite ill, and when the doctor who had been sent for arrived he found the youngster in a critical condition. Turning to the mother, he said:

"Mrs. Williams, this is a very sick baby. Why was I not called before?"

"Well, doc," replied the woman, "you see it was this-a-way. You remember you give the old man some medicine for his rheumatiz along back in the winter and he didn't take it all up yet, and we had some of that spring tonic you gave Lizzy still, and Mis Tishbein, 'cross the road, she had some of a bottle of medicine she got last fall, so we thought we'd give them to

Dianthy first. Seemed a pity to waste all that good medicine that we had right here in the house."

GEO. B. LAKE

Good Ad for Esperanto

If one is a tooth and a whole set are teeth,
Then why shouldn't booth in plural be beeth?
If the plural of man is always called men,
Why shouldn't the plural of pan be called pen?
You may find a lone mouse or a whole nest of mice,
But more than one house is most surely not hice.
A cow in the plural is properly kine,
But a bow if repeated is never called bine.
Then, one may be that and two would be those,
Yet hat in the plural would never be hose.
We speak of a brother and also of brethren,
But though we say mother we never say methern.
The masculine pronouns are he, his, and him,
But imagine a feminine she, shis, and shim!
So the English, I fancy you all will agree,
Is the funniest language you ever did see.

—*"Adapted" by the Boston Transcript from the Inland Printer.*

Set in His Ways

An ancient colored butler in a southern family had been having a violent argument with one of the other servants regarding the manner in which he performed certain duties, and the second party to the argument, feeling that the old man was obstinate and unreasonable, carried the matter to the mistress, who sent for the unyielding one and requested him to justify his position, whereupon he replied, "I'se a man ob strong contraduncti*o*ns, and when Ah takes a positive absol*u*te Ah'm very hard to con*s*equence."

OH, LOOK! We can make astonishers all over the place. Observe ! ! ! ! ! Are they not, indeed, fine astonishers? S. M. Ferbus told us how to do it, but we simplified his method. We put the right foot firmly on the spacing bar and the left foot on the shift key. Then we prod the period key with the right forefinger and yell for Al Chase to come over and jump on the key that has the dingus on it. And thereby we get a fine astonisher. Complicated, but look ! ! ! ! ! !—R. H. L., in *Chicago Tribune.*

Call the Coroner

An Englishman, after his first experience with a codfish ball, remarked to one of the bystanders:

"Do you know, old chap, I think there's something dead in the little bun."

Substitution

"I'm sorry," said the druggist to his customer, "but I haven't a quart of Blow Torch Bourbon in the store. However, here is a bottle of Three Star Blisterino, which I can guarantee to be just as bad."

Hats Off

Customer—"Have you anything for gray hair?"

Conscientious Druggist—"Nothing but the greatest respect, sir."—*Boston Transcript.*

My Paw

Paw sez you can purty nigh always never tell
About a woman, 'cause jist when you're surest you know
She's lyin' about somethin' or other, well,
It's mebbe every word of it so.

—B. H.

Thumbnail Therapeutics

Neoarsphenamine in Aphthous Stomatitis

The best treatment for aphthous stomatitis consists in dissolving 0.15 Gm. of neoarsphenamine in lukewarm water, in the ampule, and making two applications to the patches by pressing them gently for a few seconds with a swab saturated in this solution. It is well to paint over the entire mucous membrane of the mouth to prevent spreading and recurrence.—DR. J. BASCH, in *Deut. med Wchnschr.*, July 20, 1928.

Acetarsone to Prevent Syphilis

There seems reason to believe that when one has been exposed to syphilitic infection, either through coitus or by handling a syphilitic patient, the development of the disease can be prevented by the oral administration of acetarsone.

The drug is given in 3-day cycles, separated by periods of equal length—0.5 Gm. on the first day and 0.75 Gm. on the second and third—until from 4 to 8 Gm. have been given, depending on the body weight and the length of time since the suspected infection.—DR. ALFRED FESSLER, *Dermat. Wchnschr.*, Jan. 26, 1929.

Cinchophen in Gout

There can be no doubt that in cinchophen we have a drug which is often invaluable in the treatment of chronic gout, and that in certain cases of this disease a cure can be effected or great alleviation of symptoms obtained, such as cannot be effected by colchicum or any other means.—DRS. G. EVANS and A. W. SPENCE, *Lancet*, Apr. 6, 1929.

Catheter Life Versus Operation

No patient should be subjected to the risk of an operation unless there is more than a 50 percent chance of a good result. If he has only the choice of spending his last days in a hospital, as a postoperative patient, or living a fairly comfortable catheter life at home, all will agree that the latter is preferable.

No patient should ever be catheterized unless there is an indication for it, and routine catheterizations are criminal in cases that can be successfully relieved by operation. — DR. M. B. WESSON, San Francisco, in *California and West. Med.*, Sept., 1928.

Dextrose in Infantile Diarrheas

Most cases of acute diarrhea or intestinal intoxication in young children show signs and symptoms of toxemia, dehydration of tissues and acidosis. Not only is glucose (dextrose) therapy indicated, but fluids also are essential. It has proved satisfactory to give the dextrose intraperitoneally, in 5- to 10-percent strength, in isotonic salt or Ringer's solution, administered 15 to 20 cc. to each pound of body weight.—DR. G. Y. GILLESPIE, in *Southern Med. Jour.*, Oct., 1928.

Mustard Plaster in Migraine

Roentgenograms have shown that, during attacks of migraine, peristalsis is frequently arrested for several hours. The application of a mustard plaster over the lower abdomen will often restore this function.—*Notes and Abstracts.*

Urinary Stasis

Whenever there is stasis in the urinary tract, the presence of a non-irritating silver salt prevents, or at least tends to minimize, the chemical trauma from ammonium carbonate formed in the urine as a result of stasis and infection. This can be further enhanced by the instillation of an amount of light mineral oil, somewhat greater in quantity than the amount of residual urine present in a given patient. The oil floats on top and, as a consequence, the residual will consist almost entirely of oil which cannot decompose as does urine. A small amount (1 percent) of eucalyptol added

to mineral oil tends further to keep the urine reasonably clear. — DR. ROBT. V. DAY, Los Angeles, in *California and West. Med.*, Sept., 1928.

Whooping Cough and Vaccine

Three injections of potent vaccine did not prevent the occurrence of whooping cough in definitely exposed susceptible children. Vaccine therapy had little, if any, influence on the course of the disease in 100 patients. The earliest possible diagnosis followed by the strictest quarantine is the chief means of combating this malady.—DR. L. W. SAUER and LENORA HAMBRECHT, Evanston, in *J.A.M.A.*, Dec. 15, 1928.

Ephedrine Checks Reactions to Arsphenamine

Generally, arsphenamine injections are followed by sharp reactions—nausea, headache, vertigo, etc. In a series of 68 cases, the daily injection of 50 Mg. of ephedrine (for from 2 to 5 days) caused relief from the symptoms in 57.5 percent. The majority of these patients showed recurrence of the symptoms when ephedrine was discontinued.—DRS. J. H. STOKES and MARY C. MCINTYRE, in *Arch. Dermat. and Syphilol.*

Milk Injections in Psoriasis

Two cases of psoriasis were cured by injections of sterilized milk.—DR. S. A. BANKER, in *Indian Med. Gaz.*, June, 1928.

Appendicitis

The treatment of acute appendicitis should always be surgical and never medical, unless one classes treatment by anatomic and physiologic rest as medical. Anatomic and physiologic rest is the treatment for appendiceal peritonitis, but not for the simple, acute case of appendicitis, unless operation is refused, or when, on account of a serious systemic condition, operation is contraindicated.—DR. JOHN B. DEAVER, in *J.A.M.A.*, *May* 26, 1928.

Vaccines and Uterine Infection

A slight rise of temperature following delivery is very often the forerunner of uterine infection. Injections of polyvalent streptococcic vaccine, which may be increased in dose until temperature falls, combined with stock pneumococcic vaccine, if pneumococcal infection signs are manifest, have been invariably successful in such cases. The lochia and milk secretion become normal.—DR. P. MOLONEY, in *The Practitioner*, London, April, 1928.

Local Anesthesia in the Office

In minor surgery, done in the office, most patients have an undue fear of pain; they will in fact, because of the dread of pain, postpone a trivial operation until they become incapacitated or even dangerously ill. Proper use of procaine is of great value in such cases.

By using a very small, sharp needle to begin the injections, proceeding slowly and exercising great gentleness and "jollying" psychology, most such minor office operations can be made practically painless.—DR. R. F. RAIFORD, Franklin, Va., in *Southern Med. and Surg.*, Dec., 1928.

Hydrocephalus

The *cause* of any case of hydrocephalus should be found and treated *early*.

Fluid forms in the ventricles of the brain as urine is secreted in the kidney, and it must flow out at the base or hydrocephalus will result.

Tumor of the cerebellum blocks the aqueduct of Slyvius, and the tumor should be removed as soon as a diagnosis is made. If that is impracticable, the *choroid plexus* should be removed, in order to limit further secretion of fluid. — DR. WALTER E. DANDY, Baltimore, Md.

Resection for Gastric Cancer

I do not hesitate to remove an operable cancer of the gastrointestinal or urinary tract, even though cure is impossible because of metastases. The secondary tumors grow much more slowly after the primary lesion is removed, and the patient is comfortable.

Resection of the portions of the stomach involved in a gastric carcinoma is no more dangerous than a short-circuting operation; and even though metastasis has occurred, it gives the patient from one to three years of comfortable and reasonably active life. —DR. W. J. MAYO, in *Proc. Staff Meetings Mayo Clinic*, Oct. 17, 1928.

Parathormone Reduces Blood Coagulation Time

Parathormone is the most useful preventative for hemorrhagic diathesis. In 72 patients, 48 of whom had a coagulation time above 15 minutes, and many of whom had had severe bleeding from previous minor operations, 10 units of Parathormone (Lilly), injected subcutaneously, 12 hours, 6 hours and ½ hour before operation, reduced the coagulation time to less than 6 minutes.—Dr. Samuel Morse, in *E.E.N. T. Monthly*, Aug., 1928.

Liver Treatment in Sprue

The similarity between pernicious anemia and sprue would suggest that liver extract, which has been found so potent a remedy in the first, should also be effective in the second. And, as a matter of fact, some very extraordinary results have already been reported. In one case, a sprue patient who, in Nov., 1927, had a red blood cell count of only 400,000 per cubic millimeter and hemoglobin 25 percent, showed a count of 5,000,000 with hemoglobin 75 percent in Mar., 1928, and all the symptoms of sprue had disappeared as the result of treatment with liver extract.

In the East and in the tropics, liver soup has long been known and successfully used as a remedy for sprue.—Editorial, *J.A.M.A.*, Oct. 6, 1928.

Opening Ampules

If the little file which comes with most ampules is moistened with water before using it to scratch the glass, it will work much more efficiently.—*Therapeutic Notes.*

Vitamin A and Renal Calculus

There seems to be reason to believe that renal calculi form more readily in animals deprived of vitamin A, and that the administration of this vitamin will eliminate calculi which have already formed.—*Therapeutic Notes.*

Surgery in Ectopic Pregnancy

The woman with an ectopic pregnancy is not a case for *emergency* surgery. Of 510 ectopic gestations, only 3 patients died from acute hemorrhage, and they expired before surgery could have been applied to save them. Do not operate upon these patients hurriedly, when they are in poor condition. Carry them through the period of shock and operate when conditions are favorable.—Dr. John O. Polak, Brooklyn, N. Y.

Insulin in Hypotrophic Children

Children who are constitutionally inferior and under par, especially when they become ill, are benefited by *small* doses of insulin, beginning with ⅛ to ½ unit, and gradually increasing to one unit daily, to be repeated for several days, if no untoward symptoms appear.—Dr. E. Vogt, in *Beihefte z. Med. Klin.*, Nov. 7, 1927.

Danger of Incomplete Removal of Tumors

In known cancer, *no* operation is preferable to an incomplete one. The same is true in all borderline cases.

In operating upon apparently benign tumors, remove all the tissue possible, without mutilation. Myxomas are fatal if incompletely removed. — Dr. Joseph C. Bloodgood, of Johns Hopkins University.

Urticaria

In many cases of urticaria there is an associated disturbance of the acid-base equilibrium and the two conditions seem to be connected.

In acidosis, *sodium carbonate* administration will cause the urticarial itching and wheals to disappear; sometimes daily injections of *lobeline* are effective

If there is alkalinity, strontium or calcium therapy is indicated. — Dr. H. T. Schreus, in *Muench. med. Wchnschr.*, Feb. 24, 1928.

Endocrine Constipation

Chronic constipation may be due to deficiency of the thyroid, pituitary or ovarian secretions and in such cases will yield to the intelligent administration of these endocrine products.—Dr. Julius Schneyer, *M. J. & Rec.*, Oct. 19, 1927.

Tartar Emetic in Chancroids

The length of treatment and the occurrence of complications, in cases of chan-

croid, can be reduced 50 percent by the intravenous administration of a 1-percent solution of antimony and potassium tartrate. Begin with 3 cc.; inject at 4-day intervals; increase each dose by 1 cc., up to 10 cc.—Dr. Alfred E. Jones, *J.A.M.A.*, May 28, 1927.

Alkaline Solutions in Maxillary Sinusitis

Purulent inflammations of the antrum of Highmore, which do not show a tendency to healing under irrigations with ordinary water or Ringer's solution, usually yield after one or two irrigations with an alkaline solution. — Dr. R. Mittermaier, in *Muench Med. Wchnschr.*, Oct. 12, 1928.

Ephedrine

Ephedrine may produce acute cardiac decompensation and pulsus alternans, in patients with damaged hearts. Great care should be taken in prescribing ephedrine to patients with cardiac disease. The sale of ephedrine to laymen should be discouraged. —Drs. W. A. Boedorn and P. F. Dickens, in *Arch. Intern. Med.*, Sept., 1928.

Carbon Dioxide Inhalations in Alkaloid Poisoning

The insufflation of carbon dioxide for the stimulation of the respiratory center in post-narcotic conditions—especially after morphine-scopolamine-ether anesthesia — is preferable to the administration of lobeline. — Dr. K. H. Erb, in *Muench. med. Wchnschr.*, Aug. 10, 1928.

External Operation for Chronic Ethmoiditis

In chronic suppurative disease of the ethmoid, a very small incision in the delicate skin, just internal to the inner canthus, which leaves an almost invisible scar, will allow practically the whole ethmoid to be dealt with, and particularly the fronto-ethmoidal and orbito-ethmoidal cells, which are so often at fault and tend to keep up ethmoidal disease. These cells cannot be safely and satisfactorily removed by the intranasal method. — Dr. W. Howarth, London, Eng., in *Eye, Ear, Nose and Throat Monthly*, Dec., 1928.

Rosacea

For mild cases use an ointment as follows, to be painted on at night:

℞ Acid salicylic	1.5
Sulphur precip	1.5
Venetian Talc	10.0
Rice starch	10.0
Silicic earth	5.0
Alcohol (70 percent)	150.0

In more severe cases use this ointment for three days:

Zinc ointment	20.0
Resorcin, finely pulverized	20.0
Ichthyol	5.0
Vaseline	5.0

After the three days, a brown horny layer will begin to shed; it must not be peeled off but protected by zinc-ichthyol gauze or painted with zinc-ichthyol glue from the 4th to the 7th day. The cure must be repeated four times and in severe cases six times.—Dr. Robt. O. Stein, Vienna, in *Urol & Cutan. Rev.*, March, 1928.

Calcium in Hay-Fever and Asthma

Calcium is beneficial in most hypersensitive (allergic) cases, whether they show a low blood-calcium or not. It produces a marked improvement in seasonal hay-fever; in some cases of perennial rhinitis and in bronchial asthma it stops the leaking of the sensitive mucous membrane of the upper respiratory system. Both calcium and phosphorus help to control the hyperexcitability of the nervous system.—Dr. Alex Sterling, of Philadelphia, in *J. Lab. and Clin Med.*, Aug., 1928.

Priapism

Whatever the etiologic factor may be in priapism, if erection has persisted for two days or more, a thrombosis exists in the corpora cavernosa. The immediate relief of the patient's symptoms depends on the collapsing of the penis by emptying it of this clot by aspiration.

After the skin and Buck's fascia have been anesthetized (by procaine solution 1:200), a No. 8 Luer needle is introduced into the corpus, 1 mm. anterior to the midline of the penis; the clot is then aspirated with a 20 cc. Luer syringe.—Drs. R. W. McKay and J. A. C. Colston, in *J. Urol.*, Feb., 1928.

Current Medical Literature

Clinical Experience with Irradiated Ergosterol

As reported in *Arch. Pediat.*, Jan., 1929, Drs. J. Sobel and I. Claman employed clinically, in cases of rickets, a 1-percent oily solution of irradiated ergosterol, 5 drops of which was said to be equal to 2 mg. of irradiated ergosterol. They are of the opinion that the optimal dosage of this strength is 3 to 4 mg. (8 to 10 drops), daily, for children over 1 year old, divided into two or three doses. For children under 1 year old the optimal dosage is 3 to 5 drops daily, given in divided doses. In premature infants and as a preventive, 1 to 2 drops daily suffice.

After several weeks the preparation may be discontinued or the dosage reduced if the serologic and x-ray findings warrant it.

As much as 480 mg. or 1,200 drops were given in 80 days in one case and no ill effects were noted.

The authors' general observations from their own results show that:

There was a decided improvement in the general well-being of the patients, their appetite, their digestion, their weight, their color, their general behavior, their animation and their muscular tone.

Craniotabes disappeared in 2 weeks, and the open anterior fontanel diminished in size from four to two fingers' width in 6 weeks. Replacement of the parchment feel of the cranial bosses by rigidity in a short time was dramatic.

The laboratory findings demonstrated a definite increase in the blood phosphorus to a normal level.

Roentgenography showed a progressive calcification at the epiphyses and diminution of cupping and fraying. The rosary was diminished in some cases but did not yield completely during the period of observation.

Irradiated ergosterol is a powerful, reliable, therapeutic, specific agent for active rickets.

From the standpoint of vitamin D, it promises to supplant cod-liver oil and ultraviolet therapy. Cod-liver oil will still find its usefulness for its ophthalmic or fat-soluble vitamin A content.

Further studies may establish other indications for the use of irradiated ergosterol.

In the treatment of tetany, irradiated ergosterol will probably replace the use of calcium salts and parathyroid extract, because of its greater ease of administration and its equally rapid results. It has the added advantage over calcium salts in that the latter must be continued in order to relieve the symptoms, while ergosterol has a peculiar tendency to continue to exert its effect for a considerable period after it has been discontinued.

No disturbance of the kidneys, as evidenced by urinary examination, was observed.

The observations confirm the uniformly favorable results which have followed the administration of irradiated ergosterol as a prophylactic and curative in rickets, as reported by a large number of clinicians and laboratory workers here and abroad.

Hyoscine and Morphine and the Renal Function

The value of hyoscine and morphine for the relief of pain and the quieting of psychopathic patients is well recognized. Dr. R. W. Barnes, of Los Angeles, has made some experimental investigations on this subject on 25 patients in the Los Angeles General Hospital. The results, as reported in *Am. Med.*, Feb., 1929, are as follows:

Appearance time for renal function test while patient was under influence of the drug, 6.8 min.; without drug, 8.0 min. Percent returned in 1 hour, with drug, 47.6; without drug, 51.5.

From these figures it is apparent that hyoscine and morphine, given in ordinary therapeutic doses, have very little, if any, effect on renal function. Other workers have come to the same conclusion in regard to morphine and atropine. Therefore, these drugs are not contraindicated in cases of impaired renal function.

Acriflavine in Treatment of Gonorrhea

In *Northwest Med.*, Mar., 1929, Dr. J. G. Strohm, Portland, Oregon, reports upon 1,420 cases of acute anterior gonorrheal urethritis treated as follows: A pint of 1:4000 solution of acriflavine, temp. 115°F., was placed at the level of the patient's chin. On the first day the patient's urethra was irrigated morning, noon and night; from the second to fourth day, irrigation was done morning and night only, providing the acriflavine solution was not painfully irritating.

About the fifth day and for the following four or five days, the patient received one irrigation of acriflavine in the morning and an irrigation of potassium permanganate solution, 1:8,000 (115°) in the evening. The penis was soaked in hot water at least thrice daily and again at bedtime; the patient drinking water freely during day and at bedtime to insure at least one night urination to cleanse the urethra of secretions accumulated during the night.

When treatment is instituted in the very early stages of the disease, after the second, third or

fourth day the two-glass urine test will show clear urine in both glasses. In such cases, slides are furnished to the patient to catch any morning discharge and, if the slides are negative, after, say, the tenth day, an attempt is made to provoke a discharge with irrigation of hot 1:4,000 silver nitrate for two successive days. Slides were taken each day, in the 1420 cases treated by this method, and 32 percent were found negative for gonococci at the end of ten days and continued so.

If the two-glass test shows both urines cloudy, the case is one of a posterior urethritis or possibly prostatitis. For the treatment of posterior urethritis the author relies upon hot sitz baths, hot enemas and acriflavine, 1 grain, t.i.d., by mouth, keeping the urine alkaline while taking the acriflavine.

In cases with acute epididymitis, Lactigen, in doses of 2 to 10 cc., is given intramuscularly every other day for several days.

Ephedrine in Ophthalmology

In *The Practitioner*, Apr., 1929, Dr. H. C. Orr, reports on his use of ephedrine as a mydriatic. The strength used was 1- and 2-percent solutions. Mydriasis is complete in 15 to 30 minutes.

If combined with 1-percent atropine, in cases of iritis, the action of the atropine is very much improved and mydriasis results in many cases where atropine alone has failed, this action being particularly well marked in post-operative iritis.

In chronic iritis it will often break down recent synechiae, where atropine alone has been tried without success.

With ephedrine, no blanching of the conjunctiva follows instillation and no rise of tension results in the normal eye. In 50 glaucomatous eyes, in which mydriasis was produced by instillation of 2-percent solution, no rise of tension was recorded, and in 12 cases a slight fall was noted.

Cocaine damages the corneal epithelium, but ephedrine does not.

The results obtained so far by Dr. Orr suggest that ephedrine can be used to examine the fundi in glaucomatous cases with no evil after-effects. *It appears to be the most suitable drug for ophthalmoscopic examinations in routine practice.*

Rheumatic Fever

In *Ann. Intern. Med.*, Jan., 1929, Drs. D. Riesman and J. C. Small name 10 different clinical manifestations which are classed under the general name of rheumatism.

That rheumatic fever is an infectious disease cannot be doubted. An organism—the *streptococcus cardioarthritidis*—believed to be the causative agent, has been isolated.

Regarding immunization, the soluble antigen of *Streptococcus cardioarthritidis* in dilutions of 1:10,000 and 1:1,000 is the agent at present employed in attempts at active immunization. The 1:10,000 dilution is used in initial doses of not more than 0.5 cc. and maintained at this amount until no reaction following its injection can be detected. After that the doses are gradually increased by from 25 to 50 percent of the dose last given. The injections are administered subcutaneously and at intervals of from 5 to 7 days. The soluble antigen should be employed routinely in patients treated with antiserum. The injections may be started as early as the third day or may be delayed until after the period of serum disease has passed. In the subacute and chronic forms the antigen alone may be used.

Treatment of Tertiary Syphilis

To the Editor:—What is the present opinion of the relative efficacy of neoarsphenamine and sulpharsphenamine in the treatment of ordinary cases of tertiary syphilis? When obesity or other reasons make intravenous treatment inapplicable, what is recommended other than the sulpharsphenamine?

P. W. Van Metre, M.D.

Rockwell City, Iowa.

Answer:—It is conceded that sulpharsphenamine is the equal at least of neoarsphenamine in the corresponding dose, two-thirds that of neoarsphenamine. It is claimed that sulpharsphenamine causes dermatitis more often than neoarsphenamine, but this is disputed.

Recently bismuth arsphenamine sulphonate (Bismarsen), discovered by Raiziss in 1925, has been recommended (Stokes, J. H., and Chambers, S.O.: Bismuth Arsphenamine Sulphonate, *J.A.M.A.*, Oct. 29, 1927, p. 1500). Of course, mercury compounds, bismuth compounds and the iodides still hold their old importance and should by no means be neglected.—"Queries and Minor Notes," *J.A.M.A.*, Mar. 30, 1929.

Liver in Secondary Anemia Following Hemorrhage

In *Surg. Gynec. and Obstet.*, April, 1929, Drs. W. P. Murphy and J. H. Powers, of Boston, record observations showing the rate of formation of hemoglobin and red blood corpuscles in a series of 24 cases of anemia due to loss of blood.

Seventeen patients were treated with large amounts of beef or calf liver, together with a diet containing green vegetables, fruit and red muscle meat; 6 of these patients received in addition large doses of iron. Seven control patients received neither iron nor a special diet; these latter showed very little change in the concentration of either hemoglobin or red blood corpuscles during a period of two weeks.

The 17 patients treated with liver or liver and iron showed a definite increase in both hemoglobin and red blood corpuscles in all except 3 cases. The patients treated with liver and iron had a greater increase in hemoglobin than did those treated with liver alone.

Those patients receiving liver, who were followed from 1 to 4 months, continued to show improvement comparable to that observed during the first 2 weeks, with the exception of 2 patients whose percentage of hemoglobin remained persistently low.

From these observations it appears justifiable to conclude that liver, together with such a

dietary regimen as that described, stimulates the formation of hemoglobin and red blood corpuscles in patients with anemia due to chronic hemorrhage. The formation of hemoglobin is still further increased by the addition of large amounts of iron to this diet.

A Medical Society's Telephone Activities

In 1926 the commercial telephone exchange serving the members of the medical profession in Portland, Oregon, notified them that the monthly rates would be raised from $4.75 to $10.00. Following deliberation, the Portland County and City Medical Society decided to form its own telephone exchange and has done so furnishing its members with complete service for less than $3.00 a month.

The exchange is on duty 24 hours a day; it employs 4 operators and handled over 70,000 calls last year. It locates doctors at all times; it is also a nurses' registry, and is a medium for furnishing office assistants and laboratory technicians, besides being a general bureau of information for the public on all medical matters. The service is strictly in accordance with the ethical code of the A.M.A.

This Doctors' Official Telephone Exchange and Nurses' Registry, operated by the Medical Society Telephone Service, Inc., has been a distinct business and economic success and the nucleus of increased activity and publicity for the profession both in general and particular. It now includes a credit bureau and has become, not only a professional, but also a public institution in Portland, with constantly widening uses.—Dr. Adalbert G. Bettman, M.D., in *Med. Economics*, May, 1929.

Female Sex Hormone in the Urine in Early Pregnancy

Drs. C. Mazer and J. Hoffman, of Philadelphia, state, in *Am. J. Obst. and Gynec.*, Feb., 1929, that they found varying quantities of female sex hormone in the urine of pregnant women as early as one week after the first missed period.

The sex hormone is not, however, demonstrable in the urine of women during early pregnancy in every case, because of insufficient concentration. When large quantities of such urine are injected, the test animals invariably die before the appearance of the reaction.

Acute Intestinal Obstruction

Dr. Thos. G. Orr, in *Surg. Gynec. and Obst.*, Feb., 1929, gives the following as the essential factors in the treatment of acute intestinal obstruction:

1.—Operation should never be attempted without preliminary treatment, when a patient is very toxic and dehydrated.

2.—In a large percentage of cases of intestinal obstruction with toxic symptoms, enterostomy should be substituted as a temporary procedure before an exploratory operation is attempted to find and relieve the obstruction.

3.—No surgery should be done in toxic cases before the toxemia has been treated by the administration of sodium chloride.

4.—Dehydration and toxemia are treated simultaneously by the giving of large quantities of sodium chloride solution.

5.—As long as nourishment cannot be given by mouth, glucose solution should be given daily, parenterally, to furnish food.

Prenatal Prevention of Hemorrhage in the New-Born

In *J.A.M.A.*, Feb. 16, 1929, Dr. J. N. Kugelmass and J. E. Tritsch, of New York, state that evaluation of the blood clotting function of maternal blood offers a basis for the prediction of potential hemorrhagic disease developing in utero. Such an early diagnosis is more favorable for prenatal preventive therapy.

A biochemical study of the clotting components of the blood, from the second month of pregnancy to term, in a woman who had given birth to five infants, three of whom (and possibly a fourth) had had true melena neonatorum, showed prothrombin deficiency analogous to that observed in true melena neonatorum.

Nutritional therapy of the mother throughout pregnancy developed and maintained a normal maternal blood before birth. The fifth pregnancy terminated in the birth of a normal, nonbleeding infant.

Airplane Military Ambulances

The ultra-modern commercial airplanes that are now being developed would be of little value as military aircraft. But, in the opinion of Capt. R. K. Simpson, M. C., U. S. A., in *Mil. Surg.*, Jan., 1929, the cabin type, multi-motored planes could be used to military advantage, in war time, as ambulance planes.

There are 3 Cox-Klemin planes now part of the Air Force equipment, designed and built as ambulance planes, and they are proving their value..

Such planes would function between collecting stations for the wounded and the general hospital, and would evacuate only such casualties as are destined for the surgical hospital. A certain amount of emergency treatment could be given during the flight.

The advantages of airplane ambulances would be greater speed and comfort in transit. There would be a possibility of eventually eliminating the mobile surgical hospital in the field; it could possibly eliminate the hospital train; it is entirely probable that it may revolutionize the entire organization of the medical department in the field.

Commercial planes could be built with a view to their being converted to use as airplane ambulances in the event of war.

Trichomonas Vaginalis Donné

Trichomonas vaginalis, Donné, a flagellate parasite, is found in a large proportion of cases of persistent vaginal discharge. A number of such patients have been cured by the following procedure:

A Miller speculum is inserted and the entire vaginal mucosa is cleansed with cotton balls, moistened with liniment of soft soap or compound solution of creosol. When dried, an alkaline powder is introduced through the speculum and thoroughly rubbed into the entire vaginal mucosa. It is believed that the powder kills the parasite by its drying effect, rather than by its alkalinity. If the vagina is inflamed, it is painted with a 5-percent solution of mercurochrome. A lactic acid douche or a weak iodine solution may be of value in some cases—DR. C. H. DAVIS and CHARLOTTE COLWELL, Milwaukee, in *J.A.M.A.*, Jan. 26, 1929.

The Bacteriophage and Osteomyelitis

Dr. F. H. Albee, of New York, in *Internat. J. of Surg.*, Jan., 1929, states that, in osteomyelitis, he has substituted the **Orr treatment** for the Carrel-Dakin method. The important innovation in the Orr treatment is that, after preliminary opening up, clearance and drainage of the focus, the whole limb is enclosed in plaster without a window or other opening, so as to protect against secondary infection. The diseased area is, in fact, allowed to "stew in its own juice" for some months. During this period sequestra separate and osteogenesis progresses beneath a fetid mass of pus which is cleared away at the second treatment of the area.

Orr claims that his method is a return to Listerian principles; i.e., that antiseptics were originally used, not to disinfect, but to protect against infection. In sealing an infected wound in plaster and denying dressing for weeks, Orr upsets the most cherished idea of free and adequate drainage.

Albee, however, believes that the real explanation of the excellent results obtained by this method is to be afforded by the action of d'Herelle's bacteriophage, which brings about either microbic dissociation or reduction of virulency of the infecting organisms.

In ordinary drainage, not only are toxins and antitoxins decreased, but the bacteriophage is diminished in concentration. There is a release of tension also and a better suppy of blood. If, however, it were possible to relieve tension and at the same time bathe the infected zone in an increasing concentration of the bacteriophage, dissociation and phagocytosis of the infecting organisms should be accelerated. This, Albee suggests, is precisely what the Orr treatment does.

Renal Function Tests

Dr. Lee Foshay, in *Ohio St. M.J.*, Jan., 1929, states that urinary quantity, urinary specific gravity, albuminuria and urinary sediment and the phthalein output are the best of the simple renal function tests. They are of little importance in acute kidney disease, but are of considerable diagnostic and prognostic importance in chronic disorders.

With these simple tests a satisfactory classification of the nephritides may be made, into nephrosis, nephritis and nephrosclerosis.

The best treatment for nephrosis is a moderately high protein and low fat diet, with enough alkali to keep the urine neutral to litmus and salt to taste. Restriction of salt has no beneficial effect on either the nephrosis or the edema.

In cases of nephritis, eradication of foci of infection is important. The cellular and humoral acidosis should be treated with enough alkali to keep the urine neutral to litmus. Convulsions and coma are best treated by lumbar puncture, with ample spinal drainage, and followed by intravenous injections of hypertonic salt or glucose solutions. Hypertonic alkaline-saline or sugar enemas are also useful, as is magnesium sulphate by mouth, by rectum and intravenously.

The common cause of nephrosclerosis is a diffuse, hyperplastic sclerosis of the arterioles. Kidney parenchymal damage is only one of the effects. The best treatment for the condition is to feed the patients whatever they usually eat, providing it constitutes a reasonably complete diet. Salt is permitted to taste. Potassium iodide (3 grains—0.2 Gm.) per day for months, does good. Focal infections should be removed. Other than this, the oniy treatment advised is general attention to the cardiovascular system and to the patient as a whole.

In clear-cut cases of relatively pure tubulous disease, glomerulonephritis or nephrosclerosis, renal function tests are usually unnecessary for a diagnosis.

Lighting the Operating Room

Fortunately or unfortunately, as one may look at it, daylight is not under human control, and so it becomes necessary that all operating rooms be furnished with an artificial lighting system. A number of excellent devices are on the market but, like all other human fabrications, they require a certain amount of intelligence for their satisfactory operation.

In the *Transactions* of the Illuminating Engineering Society for April, 1929, Henry L. Logan, one of New York's experts in this line, makes some suggestive remarks regarding the lighting of operating rooms, which are worthy of consideration.

If a bright spot of light is thrown on the operating area, leaving the rest of the room in comparative darkness, eye adaptation difficulties develop. The surgeon cannot keep his eyes glued to the small, bright field throughout the operation. He has to ask for sponges, sutures and instruments. He has to give instructions. Things have to be moved. Every time he lifts his eyes from the bright field their adaptation changes and their sensitivity drops.

The doctor makes special efforts, although perhaps unconsciously, to force his eyes to their work, but nothing he can do will increase the rate of recovery and his work meanwhile slows up in speed and becomes reduced in accuracy, as what his muscles do depends upon how fast and clearly his eyes can see.

Investigation has led to the conclusion that the ideal operating room light should be extremely flexible, with a light-pattern that can be varied with the types of operations performed. By controlling certain lights of the lens system independently, and publishing a switching chart of light patterns, this last requirement, from the engineering standpoint, is fully met. The medical staff, however, should add one very necessary

refinement—the use of a neutral-colored body cover, to confine the high illumination to the wound area by absorption of the overflow.

It is the custom in hospitals to place a notice on the wall or door of the operating room, one day in advance of operations to be performed. Along with this notice should be the light-pattern switching chart. When the nurse goes to the chart and notices, for example, an appendectomy listed, she would glance at the light-pattern chart and see certain switch numbers listed against that type of operation, and she would arrange the lighting accordingly.

Postpartum Bladder Complications

Dr. G. C. Prather, of Boston, in *Am. J. Obst. and Gynec.*, Feb., 1929, reaches the following conclusions, based on a study of 58 postpartum cases from the urological service of the Boston Lying-In Hospital:

Unexplained postpartum fever may be due to bladder residual.

Of postpartum bladder complications, 87.6 percent occur in primiparae. Injury to the bladder wall at delivery, increased bladder capacity, and temporarily disturbed function of nerves to the bladder are believed to be responsible.

Treatment advised for acute retention is intermittent drainage, changing to constant drainage after 48 hours if there is still a bladder residual over 1½ ounces or a fever not otherwise explained.

The Surgical Square Knot

Dr. Ed. M. Livingston, New York, in *Amer. J. Surg.*, Feb., 1929, contributes a highly interesting and profusely illustrated article on the use of square knots in surgery, the square, flat or reef knot being accepted as the surgical tie of choice. This is defined as a double knot made by superimposing one simple knot upon another in such a manner that the two stretches of cord pass together under the loop of the second component and are not separated by this loop. The difference between the square knot and the "granny" knot, which is the kind of double knot almost always made by laymen, is that the latter is made by superimposing one simple knot upon another in such a way that the two stretches of cord do not pass together under the loop of the second component but are separated by this loop.

The practical application of making surgical square knots is not simple. Over a hundred different ways of making such a knot may be demonstrated, and problems of a surprisingly intricate nature are involved. Yet the surgeon must be able to make this knot accurately with safety and with ease, under any circumstances which may arise in his work. Frequently "granny" knots are tied under the impression that the method used was creating square knots, or they are deliberately made because, under the circumstances, square knots prove too troublesome.

The author shows that laymen make "granny" knots because this is a "naturally" tied knot; that is to say, uni-dexterity tends toward this type of knot. The square knot necessitates an ambidexterity. The "natural" proneness to make a "granny" knot must be overcome by the equal use of both hands and this art must be specially acquired.

The present methods of tying knots are based upon a study of *cord* relationships and require direct vision for an examination of each knot as it is being formed, making delay necessary and error common.

The physiologic method described by the author stresses the movements of the *hands* rather than the interrelationship of the cords. This method brings the many variables associated with the tying of knots under control. By its use the surgeon can create square knots with the same ease and certainty with which the layman creates granny knots. The physiologic method is based upon two laws, which may be stated as follows:

1.—Identical movements of opposite hands insure a square knot (*the law of the maneuver of ambidexterity*).

2.—Opposite motions of the same hand insure a square knot (*the law of the maneuver of bimotility*).

Square knots can be made with safety and facility only when attention is paid to the plane in which the knot is formed. To disregard the plane of the loop will result in knots which are twisted and insecure. In order to copy exactly the movements for any method of tying a square knot, it is essential that the plane of the loop in the copy be identical with the plane of the loop in the demonstration. Square knots may be made without the necessity for changing or crossing the hands, provided that the plane of the loop corresponds to the sagittal plane of the surgeon's body; but when the plane of the loop is parallel with the surgeon's frontal plane, the hands must always be changed or crossed as the double knot is tied.

Selected maneuvers are described and illustrated to demonstrate these considerations.

Potassium Permanganate in Pneumonia

Several reports have appeared in the English medical literature regarding the efficacy of potassium permanganate treatment of certain diseases of toxic and infectious origin, especially pneumonia.

In *Ann. Intern. Med.*, May, 1929, Dr. J. L. Chester, Detroit, reports that, owing to the rapid recovery of a moribund pneumonia patient, following permanganate treatment, this method was taken up more extensively in the Providence Hospital. Of 23 patients with lobar or bronchopneumonia treated, 21 recovered and 2 died.

In the Eloise Hospital, maintained by the Wayne Co. Poor Commission, in which the human derelicts of the community find a resting place, 20 patients with pneumonia, all severe and complicated and frankly in the worst and wellnigh hopeless conditions, were selected. Ten of these patients were handled by other means than the potassium permanganate method and all of these died. Of the 10 patients treated by permanganate 5 recovered. The author considered that the saving of 50 percent of these patients was entirely due to the permanganate. In the other cases the treatment came too late for results.

The permanganate treatment (which acts on the toxemia) is inexpensive, easily understood and admirably adapted to ordinary home nursing. A standard solution was used by the author, namely; two grains (0.130 Gm.) of permanganate to 1½ pints (750 cc.) of warm, sterile water, injected rectally by means of a funnel and catheter, the patient lying on the left side.

The injection is preferably given about half an hour after a bowel movement. The quantity and strength of the solutions and length of time between injections will vary according to the individual's needs and the circumstances of given cases. In the author's cases, generally, the initial injection was 4 ounces, repeated every 3 hours. Within 12 hours the patients usually began to show improvement, which thereafter was rapid.

In cases in which rectal administraton is not, for some reason, practicable, the cachet method may be employed.

From the clinical observations the author considers that the permanganate has all the earmarks of having a true specific action in pneumonia.

Benzyl-Cinnamic Ether in Cutaneous Tuberculosis

In 1919, Jacobson reported the biologic properties of the two cinnamic and benzylic radicals which compose benzyl-cinnamic ether. The cinnamic radical has the property of inhibiting the growth of the Koch bacillus and other microbes, of attenuating the febrile reaction due to injection of tuberculin and of inducing an appreciable leukocytosis. The benzylic radical possesses a very strong dissolving action on the Koch bacillus.

In *Urol. and Cutan. Rev.*, April, 1926, Dr. J. Rennes gives the histories of five cases of tuberculous lupus, treated with benzyl-cinnamic ether. The changes observed included steady regression of the tuberculous infiltration and edema; changes in the character and diminution of the suppuration, with sclerosis and cicatrization of the ulcers; lupomas first become sanguineous, then later softened, exfoliated and sclerotic; glands either regress and are absorbed or assume the characters of "warm" abscesses, suppurate and finally become cicatrized.

The injections, which are made subcutaneously, are painless and do not evoke any reaction, local or general. In regard to dosage the patient receives daily one injection of 1 cc. of benzyl-cinnamic ether for 5 days; 1.5 cc. for 5 days; and 2.0 cc. for 2 days more, thus making 12 days of treatment in one series. After an intermission of 10 days the second series is begun. After the third series there is an intermission of one month. Then three series as before. The treatment may have to be continued for one or more years.

Podalic Version

According to Dr. W. T. McConnell, in *Southern Med. J.*, Jan., 1929, no obstetrician should attempt podalic version unless he has a thorough understanding of every step in the technic, with experience of this mode of delivery as well as being able to select the cases.

From his own results the author concludes that podalic version is far preferable to high forceps extraction in cases of non-descent of the head, and that in most of the borderline cases a cesarean section may safely be avoided.

In 100 cases reported by the author, 40 of the patients were primiparae. There were 6 fetal deaths among primiparae and 10 in 60 multiparae (15 and 16 percent respectively). In high forceps extraction the fetal mortality usually runs from 25 to 50 percent and maternal morbidity is, as a rule, higher than in any other form of delivery.

Convalescent Serum in Poliomyelitis

Details of the technic of convalescent serum therapy in poliomyelitis are given by Dr. W. L. Aycock and associates in *J.A.M.A.*, Feb. 2, 1929. The use of convalescent serum is based on the following evidence:

1.—One attack of poliomyelitis apparently confers a lasting immunity to the disease.

2.—The blood serum of persons who have suffered an attack of the disease neutralizes the virus.

3.—Convalescent serum, when tested experimentally, exerts a protective action against the virus.

Blood may be safely drawn from patients after all symptoms of the acute stage have subsided, but specimens taken years after an attack still neutralize the virus. Donors for serum are obtained through after-care clinics, through local health departments and through direct appeal in newspapers. The serum is sterilized and given a Wassermann test.

No definite details have as yet been formulated as regards the best mode of administration and the amount of serum to be employed. At present, 20 cc. of warm serum is introduced by a syringe through a lumbar puncture needle. Reactions are frequent, although seldom alarming.

Chloride-Bromide Treatment of Epilepsy

The phenobarbital treatment of epilepsy has not yielded the results that were expected from it and, in Europe, bromide therapy is still employed to a considerable extent. It seems, however, that the halogens in the body and the effect of bromide medication is to cause an elimination of sodium chloride from the organism, which may reach a dangerous degree.

In *Arch. Neurol and Psychiat.*, Jan., 1929, Dr. J. Notkin, New York, reports that he has employed the bromide-chloride method in 51 cases of epilepsy. The intake of table salt was decreased to the necessary minimum (60 to 70 grains—3.8 to 4.5 Gm.—per day) adding from 8 to 17 grains (0.5 to 1.1 Gm.) of sodium bromide daily. To insure a sufficient amount of salt the bromide preparation contained 10 percent sodium chloride. The dose is then gradually increased to the maximum optimal dosage which will not give bromide intoxication, as high as 5.5 Gm. in some cases.

The author believes that this balanced chloride-bromide treatment is particularly valuable in

epilepsy. Of 51 epileptics so treated, for periods varying from 3 to 15 months, 4 have been discharged free from seizures; many still remain under hospital care, greatly improved.

Varicocele and Testicular Pain

Varicocele, of itself, is not a cause of pain and it is only when the genitalia become congested that the condition causes discomfort. Operation for varicocele may, not only fail to relieve the symptoms for which it is supposed to be responsible, but may even aggravate them. Such measures should be considered only as a last resort and every effort should be made to relieve testicular pain by diminishing congestion; psychologic treatment should be employed to obviate the condition becoming the starting point of a neurosis.—Dr. Kenneth Walker, in *The Practitioner*, Jan., 1929.

Liver Extract in Hypertension

In 17 out of 27 cases of clinically tested and verified hypertension, Drs. T. L. Althausen and associates report, in *Am. J. Med. Sc.*, March, 1929, that a reduction of the average systolic pressure of 10 mm. or more took place following treatment by liver extract. The average reduction of systolic pressure in these cases was 32.7 mm.; the diastolic pressure in the same cases was reduced by an average of 18.9 mm. Of 25 patients who had symptoms referable to hypertension, definite relief was obtained by liver extract therapy in 19 cases.

The liver extract was always given intramuscularly into the arm. In the average case a start is made with injections three times a week, beginning with 0.5 cc., then 1 cc., and so on until at the end of 2 weeks 5 cc. are reached. Following this, continuation of the injections will depend on the individual patient and upon the progress observed. The immediate effect of a single injection of liver extract is to produce a fall in the systolic and diastolic blood pressure. Such an effect was observed in 60 percent of the cases.

Age, sex and the degree of hypertension were immaterial factors in determining the success of liver therapy, but the duration of the hypertension was a factor. In old cases success may not be obtained.

No undesirable effects, referable to the reduction of hypertension, were observed in any case. The reduction of hypertension in many cases lasted for several months.

Psychiatric Considerations of Abortion

The mental condition of every woman is more or less changed by pregnancy. In *Southern Med. and Surg.*, Apr., 1929, Dr. R. F. Gayle, of Richmond, Va., remarks that, while heredity plays a part in the production of abnormal mental states, yet many mental characteristics, considered as influences of heredity, are in reality products of environment. The fear that a child will develop manic depression or some other insanity, because the mother is so affected, is not well founded. On the other hand, when the family history shows a long line of manic depressive types, with perhaps suicide and possibly a defective or abnormal child by a previous pregnancy, in which the mother was mentally disturbed, the question of an induced abortion must be seriously considered.

If a woman is of a family in which there has been much insanity or other evidence of mental abnormality and she has had a mental disorder in other pregnancies or has had previously a defective or abnormal child, it is at times advisable to terminate her pregnancy.

The author is also sympathetic toward advising abortions in that group of mentally sick, comprising the feeble-minded, the epileptic and the dementia precox patients, because heredity factors are more potent in this group.

In true toxemias of pregnancy, giving rise to mental symptoms, the indications for abortion do not depend upon the mental condition of the mother, but upon structural kidney pathology and its likelihood of causing death to the mother or to the fetus.

The fact should be borne in mind that some women feign mental disease in the hope that they may arouse the sympathy of the physician and thereby have their pregnancy terminated.

A normal pregnancy should not be interfered with simply because a woman is unwilling to face the ordeal

Rosenwald's Specific Treatment of Chancroids

Dr. H. J. Gordon, of Akron, Ohio, states in *Urol. and Cutan. Rev.*, Apr., 1929, that a study of 221 cases of chancroidal infection, treated by Rosenwald's method, showed a saving of 50 percent in the days per man necessary to effect a cure, compared with other methods.

Rosenwald's Suspension

Calomel	1 oz.	(32.0)
Zinc sulphate	2 ozs.	(64.0)
Tincture of opium, camphorated	2 ozs.	(64.0)
Lime water	8 ozs.	(250.0)

Measure drugs by volume, not by weight.

Rosenwald's Ointment

Zinc oxide	1 oz.	(32.0)
Starch	1 oz.	(32.0)
Boric Acid	1 oz.	(32.0)
Gum Camphor	1 oz.	(32.0)
Carbolated vaseline (3%)	12 ozs.	(750.0)

Measure drugs by weight and make an ointment.

The method of use is as follows:

Clean the chancroidal ulcer; take a thin piece of cotton, hold it over the mouth of the bottle of suspension and soak the cotton; shake and place the "buttered" side of the cotton on the ulcer, pulling down the prepuce to hold the dressing in place; apply a condom, if necessary (cutting a hole to allow passage of urine), and retaining it by a light bandage. The dressing should be left on for one day.

After 24 hours, the first dressing is removed and a second piece of cotton, "buttered" with the ointment, substituted. This is changed daily.

This procedure will take care of the majority of lesions. Some lesions of the proliferating type will have to be cocainized before the first application.

Under the Rosenwald method, 75 percent of the cases in the author's clinics have been healed in less than 20 days.

Sterilization of the Unfit

Dr. Robt. L. Dickinson, New York, in J.A.M.A., Feb. 2, 1929, gives a personal surgical review of 5820 sterilizing operations on the insane and feeble-minded in California State institutions. Of the total operations, 3232 were on men (2705 insane and 527 feeble-minded) and 2588 were on women (1792 insane and 527 feeble-minded).

Dr. Dickinson finds that, in all cases, proper safeguards were taken and that the surgical work was of a very high type, with good results, as shown by the follow-up. Consideration of the various operations employed argues in favor of the simplest methods being the best. In the female (salpingectomy, etc.), a low, transverse incision is favored.

Results should be tested by searching for spermatozoa in the semen and by insufflating the uterine tubes.

In the California State hospitals, after a patient has been studied, his case is taken up by the full staff at the regular staff meeting. The family record, the judge's report, with an opinion from two physicians, and the new hospital history are read in detail by the physician in charge, together with the results of the physical, mental and laboratory examinations. The patient is brought before the meeting and questioned. If the case is considered one for sterilization the operation is carried out.

There has been no fatality since 1920, in more than 3000 operations; wound infection occurred in only 2.2 percent.

The results, in the main, are surprisingly reassuring in regard to the morals of the individual and community, following discharge or parole of sterilized men and women.

Pseudo-Syphilis

In *Ann. Intern. Med.*, May, 1929, Dr. J. H. Stokes, of Philadelphia, points out that a number of very presentable reasons can be urged for regarding a patient as syphilitic when, as a matter of fact, he does not have the disease.

To obviate as much as possible diagnostic uncertainties, by controlling laboratory errors, the following suggestions are made:

1.—Never, in a doubtful case, accept a single serologic report from one laboratory, or even two reports performed at the same time in the same laboratory, without an internal check of at least two methods and a repetition.

2.—Never accept any serologic report which does not give the degree of positiveness, the antigens and the technic.

3.—Never accept a spinal fluid report which does not give the details of all four test procedures: Wassermann, globulin, cell count and colloidal tests.

4.—Refuse to accept a report based on a single type of procedure; i.e., complement fixation only. For ordinary practice, as well as for the expert, it is not too much to require both, and 3 or 4 tests of radically different types are often helpful.

5.—Never consider a laboratory report as apart from the clinical examination of the case. While the laboratory may furnish the only available evidence of syphilis, the clinical examination and the careful historical appraisal may furnish the only evidence against syphilis, entirely too often to be neglected. A Wassermann test is *part of a case*, not a case in itself.

The small private laboratory, operating in two or three rooms in a skyscraper, totally divorced from the world of syphilologic practice, is the most dangerous source of error with reference to the diagnosis of the disease that exists today, and this statement is true almots regardless of the name and fame of its head.

Vaccination Against Tetanus

In *Compt. rend. Soc. de Biol.*, Paris, Jan. 18, 1929, Drs. G. Ramon and C. Foeller report that vaccination with "associated" vaccine gives a permanent immunity against tetanus.

By associated vaccine is meant a mixture of antitoxins (for instance tetanic or diphtheric antitoxin) with a microbe vaccine. This latter increases the antitoxic immunity.

Three injections are given, the first of 1 cc., the second of 1.5 cc., one month later, and the third, also of 1.5 cc., eight days after the second. About 10 days after the third injection 1 cc. of serum of the vaccinated patient neutralizes 1000 lethal doses of tetanus toxin.

No untoward reactions were observed in the large numbers of persons so vaccinated.

Oral Administration of Typhoid Vaccine

An editorial in J.A.M.A., Apr. 6, 1929, calls attention to the fact that recent investigations increase the growing mass of evidence that oral administration of typhoid vaccine is effective. In cases in which the subcutaneous method has, for one reason or another, been rejected, oral administration may reasonably be given a trial. Recent experiments in the University of Washington have shown that, using triple vaccine, 88.5 percent of the subjects tested developed agglutinins for typhoid, compared to 80 percent who, according to the literature, develop agglutinins after subcutaneous inoculation and to 90 to 95 percent who show a positive Widal reaction after suffering from the disease.

Emotions and the Digestive Tract

Dr. W. C. Alvarez, in J.A.MA., Apr. 13, 1929 reviews the literature connecting the emotions and digestion of food and finds that much experimental evidence has been gathered to show that emotions can stimulate or inhibit, not only peristalsis, but also the flow of the salivary, pancreatic and gastric juices. Normally, the sight, smell and thought of food prepare the digestive

tract for the work it has to do. Not only mental but also physical fatigue can interfere with this process.

The author suggests that more effort be made to warn patients against eating when absent-minded, mentally upset, or greatly fatigued. Not infrequently some article of food gets the blame for an attack of indigestion, when the trouble was really due to the fact that a large meal was put into a stomach that was not ready to receive it.

It is also suggested that after operations, when a return of peristalsis and intestinal tone is desired, it would be logical to give the patient some tasty morsel of food, preferably meat.

Evaporated Milk as an Infant Food

In *Med. Times*, Mar., 1929, Dr. H. Lowenberg, of Philadelphia, draws these conclusions from his observations in 175 cases of infants, in which unsweetened evaporated milk constituted the sole source of milk supply.

Evaporated milk is/sterile; the fat is homogenized and both it and the protein are made more digestible. The vitamins, except vitamin C, are not destroyed. It is a corrective of intestinal fermentation; it does not induce vomiting and is useful when food concentration is needed. It does not cause rickets; but it may cause scurvy, if used without an antiscorbutic. It is adaptable to any method of feeding and is a useful modifier of colostrum and mother's milk.

Gain in weight, tissue, turgor and color are as well maintained when evaporated milk is employed as a source of food supply as when any other milk is used, with the exception, perhaps, of skim milk and boiled butter; this latter preparation has given the author the finest, sturdiest and best colored artificially-fed babies which he has seen.

Evaporated milk is cheap and always available; it cannot be employed when it is desirable to eliminate fat entirely.

Digitalis and Heart Disease

In *Med. Rev. of Reviews*, March, 1929, Dr. Hobart Amory Hare expresses the following views in regard to heart disease and digitalis:

"It seems to me that the most important change which has taken place in professional opinion in regard to cardiac disease is the full recognition that valvular lesions are of comparatively little importance in prognosis and treatment and that the condition of the heart muscle is the problem which is presented in every case. If this problem is not thoroughly grasped the physician will often find his efforts to benefit the patient materially impaired. Indeed, it may be truthfully said that in his efforts to do good he may actually do harm.

For example; in cases where digitalis is administered over too long a period or in too large doses, or where there is a tendency to heart block, which is exaggerated by the influence of this drug; or again, the physician may have his confidence in digitalis diminished by failing to get results when the drug seems most indicated, when, in reality, he should recognize that a heart muscle which is so degenerated that its irritability, conductivity and contractility are all impaired cannot be expected to respond to digitalis, or, to speak more correctly, digitalis cannot be expected to exercise a very beneficial effect when the organ which it is designed to influence is so far gone as to be beyond repair."

Tests and Treatment in Renal Disease

In *The Practitioner*, Jan., 1929, Dr. G. E. Beaumont, London, Eng., states that, as renal tests materially assist in the diagnosis of the type of nephritis, they also indicate the kind of treatment in any case.

In acute nephritis the patient should be given a moderate fluid and low protein diet. The total fluid should not exceed 3 pints in 24 hours. For the first 3 days, water, barley water and glucose-orangeade may be given, but no solid food. After 7 days, milk, bread, butter, honey, cream and potatoes may be given and, later, fish, chicken, boiled lamb and eggs may be added.

In *hydremic nephritis*: (a) subacute, in which there is persistent edema, a salt-free diet may be tried; (b) in lipoid nephritis an Epstein high-protein and low-fat diet may be given and, in addition, thyroid extract in large doses (15 to 20 grains daily) as long as the blood cholesterol remains high; in azotemic nephritis, a moderate-nitrogen diet is required, containing about 0.5 Gm. of protein per pound of body weight.

Behavior Problems in Encephalitis

Based on a study of 50 consecutive cases, Dr. E. A. Strecker, of Philadelphia, reports in *Arch. Neurol. and Psychiat.*, Jan., 1929, that behavior disorders are a common accompaniment of epidemic encephalitis in children. Fairly typical cases of acute encephalitis (those which show, at the onset, three or more of the usual syndrome of signs and symptoms) are more likely to be followed by severe conduct deviations than are atypical examples of the disease.

Where behavior was only slightly disturbed, there was a notable absence of fever-delirium and well marked influenza-like phenomena. Behavior disturbances are more common following delirium.

The behavior disturbances include restlessness and unusual excitability, stealing, lying, truancy, sexual deviations, tantrums, alcoholism and personal filthiness. They are likely to be more severe in boys than in girls.

Physical Signs of Acute Abdominal Disease

Dr. Hamilton Bailey, of Birmingham, Eng., in *Med. Rev. of Reviews*, March, 1929, gives the following two physical signs which may prove helpful in a general way in determining whether or not an acute abdominal condition is present:

1.—*Granville Chapman's rising test.* The patient is instructed to place his arms by his side and then to raise himself in bed by means of the abdominal muscles alone. The sign is positive when the patient fails to rise or complains of great pain in attempting to do so.

2.—*Altered abdomino-thoracic rhythm.* Jeans has drawn attention to a simple and very useful

piece of information. Normally during inspiration, when the chest expands, the abdomen also expands. If, however, when the chest expands, the abdomen contracts, it is highly probable that a diffuse leak is present and general peritonitis is imminent. The first three or four inspirations should be disregarded in order to allow the patient to overcome his self-consciousness. The author has found this sign positive in about 50 percent of perforated ulcer cases.

The Adrenals in Hyperthyroidism

Dr. G. W. Crile, of Cleveland, in *Surg. Gynec. and Obst.*, March, 1929, remarks that, as the symptoms of hyperthyroidism are the same as the symptoms of adrenalism, it would appear that hyperthyroidism should more appropriately be called hyperadrenalism. There are, however, three dominant factors in the production of the condition—the thyroid gland, the adrenal glands and the nervous system.

Every one of the known excitants of hyperthyroidism; namely, infectious diseases, focal infections, emotional excitation, etc., involves nerve excitation which, in turn, produces an increased output of adrenalin. The adrenalin, in turn, has the power of activating the thyroid.

In view of the above considerations, it would appear that a primary adrenalectomy would have both immediate and remote advantages in cases of extreme hyperthyroidism. By adrenalectomy the acute exacerbation of the hyperthyroidism, which is so dangerous in extreme cases of this condition, is avoided.

Ophthalmic Emergencies in General Practice

A family doctor may at any moment be called upon to deal with an ophthalmic emergency and should know what to do and what not to do.

In *The Practitioner*, Apr., 1929, Dr. A. M. Ramsay, of Glasgow, deals with three outstanding emergencies: (1) An injury to the eye of a child; (2) a case of acute glaucoma; and (3) the onset of sudden blindness in one eye.

In an injury to the eye of a child, the eyeball is or is not perforated.

The signs that the eyeball has not been perforated are: (a) the anterior chamber is full; (b) the pupil is circular and responds to the stimulus of light; (c) the tension of the eyeball is normal. First aid should be given at once. Instil argyrol* (mild silver protein) and apply a compress and bandage. Atropine is the physiologic splint and a 1-percent solution should be instilled after the argyrol. The timely use of a mydriatic is the best preventive of iritis.

The signs of perforation are: (a) The anterior chamber is empty; (b) the pupil is contracted and irregular and does not respond to light; (c) the iris is usually prolapsed; (d) the lens may be wounded. In this case the family physician, after rendering first aid, should transfer the case to a specialist at the earliest possible moment. A 10-percent solution of argyrol (mild silver protein) should be used freely, but there should be no unnecessary manipulations of the eye. Atropine and eserine may be instilled. No attempt should be made by a general practitioner to excise a prolapsed iris.

Acute glaucoma comes on suddenly in elderly persons with agonizing pains in the head, nausea, retching and bilious vomiting. In such a condition, examination of the eye should always be made and glaucoma excluded. Every family physician should be able to recognize glaucoma. The hardness of the eye, the dilated pupil, the shallow anterior chamber and the loss of sight ought to be sufficient for diagnosis. It may be mistaken for iritis, but, in the latter, retching and vomiting are extremely rare.

Morphine is the sheet-anchor in treating acute glaucoma and should be given in full dose, hypodermically, assisted by fomentations and leeching. Calomel and eserine are useful The eserine, in 1-percent solution, should be repeated every two hours.

If on the following day the pain and other symptoms are relieved, the treatment should be continued. If not, consultation with a specialist should be recommended.

The onset of sudden blindness in an eye may mean a total or partial loss of vision and an immediate test should be made. The condition is associated with a defect in the blood supply or a hemorrhage. The practitioner should seek a consultation with a specialist, but his own knowledge of the patient's and family history will be very valuable.

*Lunosol, being white, is less likely to leave a colored scar on the eyeball, and is equally effective —Ed.

Nasal Polypi

Dr. Oscar Hirsch, of the University of Vienna, in *Bull. of the Battle Creek Sanit.*, Mar., 1929, following a review of the history of nasal polypi from the earliest times, and of his own investigations, gives his conclusions that:

1.—Polypi are partly prolapses of the catarrhal mucous membrane of the sinuses, principally that of the antrum, and arise by incarceration of peaks of mucous membrane or by a continuation of the catarrhal inflammation of the sinus (principally the antrum) by way of the ostium of the sinus.

2.—From the presence of polypi, especially such as show inclination to recurrence, and from the site of the poylpi, a catarrhal inflammation of the affected cavity can be diagnosed, just as purulent inflammation of the affected sinus can be recognized by the finding and localization of the pus streak.

NEW BOOKS

Schamberg & Kolmer: Acute Infectious Diseases

ACUTE INFECTIOUS DISEASES. *By Jay Frank Schamberg, A.B., M.D., Professor of Dermatology and Syphilology in the Graduate School of Medicine, University of Pennsylvania; etc.; and John A. Kolmer, M.Sc., M.D., Dr. P.H., D.Sc., LL.D., Professor of Pathology and Bacteriology in the Graduate School of Medicine of the University of Pennsylvania; etc. Second Edition, Thoroughly Revised. Illustrated. Philadelphia: Lea & Febiger.* 1928. *Price* $10.00.

Schamberg and Kolmer's textbook on acute infectious diseases, now in its second edition, may be considered as a standard manual which presents the actual current knowledge of the etiology, pathology, prophylaxis and treatment of communicable infections. There are 22 chapters, 18 of which deal with specific infections. The opening chapter, on vaccinia, has been rewritten and extended and the authors call attention to the seemingly unnecessary amount of controversy still evident in regard to the value of this prophylactic procedure.

Considerable space in this second edition is given to the chapters on scarlet fever, diphtheria and erysipelas, owing to much new data having accumulated in recent years on these diseases. Chapter XV, on the prevention of diphtheria, is entirely new material. The chapters on Vincent's angina, serum anaphylaxis, erysipelas, mumps, whooping cough, cerebrospinal meningitis, the "fourth disease" and erythema infectiosum have also been added.

Much of the material regarding the susceptibility tests, immunity and specific antitoxin treatment, where applicable, is new.

With the recent advances in the knowledge and methods of handling acute infectious diseases the authors feel that there is a distinct place for the record of these achievements.

A well written, complete and temperate presentation of the most important subject of acute infectious diseases, such as this volume is, should merit the appreciation of the whole medical profession and of those engaged in the protection of the public health. The comparative freedom of the United States from extensive epidemics may lull us into laxity in vigilance; and it is well to keep the facts clearly before us so that we may always have an unclouded mental view of the enemies kept at bay.

Patrick: The Mind

WHAT IS THE MIND? *By George Thomas White Patrick, Ph.D., Professor of Philosophy in the University of Iowa. New York: The Macmillan Company.* 1929. *Price* $2.50.

For hundreds of years men have been setting themselves the question, "What is the mind," and have been presenting all sorts of answers. We may never solve that problem, but we have made more progress toward a solution in the last fifty years than has been made before, since the time of Aristotle. This book is an attempt to record that progress.

Beginning with a brief sketch of the history of the problem, the author restates it in terms of his own, formulating some interesting definitions, such as, "Psychology deals with the intercourse of living beings with their environment and with each other, their interest in the surrounding world and their reaction to it—their behavior"; "Intelligence is the regulation of behavior"; etc.

He then deals with Consciousness (remarking, "The heightening of perception is the supreme adventure"); Interests (he says, "No progress whatever will be made in the philosophy of mind by correlating the interests of living beings with any form of energy known to physicists"); The Philosophy of Behavior ("The things which we can *do* are more real and more important than the elements out of which we are made"); Mind and Body ("Does, then, man have a soul? No, he *is* a soul. Only when a living being gains the capacity to think, to reason, to use language, does it become a man"); The Evolution of Mind; and Formative Forces.

Dr. Patrick is a keen and sound thinker and a clever writer. At times he displays a lack of knowledge of matters which have been well discussed by others, and at times he dogmatizes (as all good teachers must), but, in the main, his arguments are reasonable, his conclusions just, and his style vivid and pleasing. His decision that the soul (or mind—he, quite inaccurately, makes them synonymous) is the *fruition* of the man, as the flower is the fruition of a plant, gives food for much thought.

Altogether a delightful and stimulating piece of work—a presentation of an abstruse philosophic problem in terms which can be grasped by anyone of ordinary intelligence who is willing to try.

Clark: Pharmacology

APPLIED PHARMACOLOGY. *By A. J. Clark, M.C., B.A., M.D., F.R.C.P., Professor of Materia Medica and Pharmacology in the University of Edinburgh. Second Edition. Illustrated. Philadelphia: P. Blakiston's Son Co.* 1927. *Price* $4.00.

Dr. Clark, in his preface to the first edition of this book says, "The principal aim of this book is to try and bridge the gap between pharmacology and therapeutics and to demon-

strate as clearly as possible the connection between the two subjects." He has endeavored "to give an account of the direct scientific evidence for the therapeutic action of the more important drugs and to demonstrate the importance of this knowledge in the clinical application of drugs." "There are at present many reasons why medical students and others often fail to appreciate the connection between the science of pharmacology and the art of therapeutics".

In the second edition several chapters have been rewritten to conform to the recent advances in Pharmacology. New chapters on central nervous stimulants, the liver and blood formation have been added. The chapter on the physiologic standardization of drugs has been omitted. This omission the reviewer questions, because the importance of this subject and its advances is so well recognized and established that such a chapter should be of definite value.

However, we welcome the opportunity to replace the old first edition which has been on our laboratory book-shelf for some years with this up-to-date second edition.

H. C. S.

Orr: Osteomyelitis and Fractures

Osteomyelitis and Compound Fractures and Other Infected Wounds. Treatment by the Method of Drainage and Rest. *By H. Winnett Orr, M.D., F.A.C.S., Chief Surgeon of the Nebraska Orthopedic Hospital, Orthopedic Surgeon Lincoln General Hospital, etc. Illustrated. St. Louis: The C. V. Mosby Company.* 1929. *Price* $5.00.

This book deals with a new method or rather the reapplication of older discarded methods—physiologic immobilization and the use of proper Listerian antisepsis—to the treatment of infected wounds, especially of bones and joints.

The author deplores the tendency, even before and since the Great War, to dispense with splinting in the treatment of compound fractures; furthermore, he believes that the use of antiseptics, as exemplified particularly in the Carrel-Dakin method of irrigation of infected wounds, has been developed to the point of abuse; that it is not generally known that infected wounds do heal without the application of antiseptic agents of any kind; that wounds, if properly protected with antiseptic coverings excluding them from outside infections, will heal consistently without daily dressings or irrigation with antiseptics, in a way that is at once easier and better; and that the important factors in securing these better results are a primary asepsis or antisepsis when required, adequate drainage, immobilization of injured parts and protection of wounds against disturbance and reinfection. This treatment is believed to be, not only superior when the infected wound itself is considered, but also when the orthopedic principles involved in the treatment of osteomyelitis and compound fractures are taken into account.

It will be observed that the basis of the treatment proposed is diametrically opposed to the lessons gained from the experience of the War; viz., early mobilization and constant irrigation by antiseptics.

But the author's results (as well as those of other surgeons who have followed this procedure) apparently fully justify this method of treating a compound fractured limb with a plaster cast and letting it "stew in its own juice"—develop a bacteriophage, perhaps. This is, the author states, in accordance with the original ideas of Lister, but these ideas have been abused in the course of time.

There is always room for progress and if newer methods of treatment give better results they will be adopted. This method allows a good deal of play to natural resources and cuts out perhaps unnecessary and, therefore, meddlesome manipulations. Time will tell how far surgeons and especially orthopedic surgeons will find that it fulfils what Dr. Orr claims for it.

Jackson and Coates: Ear, Nose and Throat Diseases

The Nose, Throat and Ear and Their Diseases. *In Original Contributions by American and European Authors. Edited by Chevalier Jackson, M.D., Sc.D., LL.D., F.A.C.S., Chevalier de la Legion d'Honneur; Professor of Bronchoscopy and Esophagoscopy in the University of Pennsylvania, in the Jefferson Medical College, and in the Graduate School of Medicine of the University of Pennsylvania, etc.; and George Morrison Coates, A.B., M.D., F.A.C.S., Professor of Otology, Univ. of Pa. Graduate School of Medicine. Assisted by Chevalier L. Jackson, A.B., M.D., Asst. in Bronchoscopy and Esophagoscopy, Univ. of Pa. Illustrated. Philadelphia and London: W. B. Saunders Company.* 1929. *Price* $13.00.

The name of the distinguished bronchoscopist, Dr. Chevalier Jackson, as Chief Editor of a new, systematic treatise on diseases of the nose, throat and ear, is a hall-mark which will insure its welcome by all interested in these specialties.

The volume, with its ample index, contains nearly 1,200 pages and is the work of 74 American and European contributors.

The plan adopted in dealing with the work of so many authors was to allow each the greatest liberty in handling his particular subject. This plan necessarily means the loss of the homogeneity evident when a book is written by a single author. But the reader gains because certain subjects are considered and treated by two or more authors from radically different points of view.

The aim has been to show the present-day opinions in regard to diseases of the nose, throat and ear and their treatment, rather than to trace the developments by which such opinions have been reached.

The book is intended to be a thoroughly practical one and the readers who consult it will learn the most modern information regarding what to do and how to do it.

For those who wish to pursue the subjects dealt with in a more detailed way than could be afforded in a limited text-book or to gain information regarding the rarer diseases, copious bibliographic references are given.

As regards typography and general setting up of the book there is little to be desired. Although somewhat unwieldly yet there are many advan-

tages of having the whole subject covered in one volume.

The work should at once take its place as a leading reference text in the library of every nose, throat and ear specialist.

Harvey: Hemostasis

THE HISTORY OF HEMOSTASIS. *By Samuel Clark Harvey, M.D., Professor of Surgery, Yale University; Surgeon in Chief, New Haven Hospital. Illustrated. New York: Paul B. Hoeber, Inc. 1929. Price $1.50.*

Dippings and musings into medical history, especially ancient or medieval history, serve a threefold purpose. First, they offer pleasant relaxations and a change of mental environment; second, they broaden our view and help to correct any complacent fulsomeness regarding our own superiority when we look into the great achievements of our predecessors; third, when the work is scholarly and the book-making craft worthy, the book itself is a joy to the lover of the printed page.

Dr. Harvey's history of hemostasis, as printed by Hoeber, fulfills all these requirements. It is a volume for the cultured physician's bookcase; and, incidentally, it will be a surprise to many to find out that the surgeons of antiquity, as well as those of the socalled "dark ages," were well versed in the art of surgical hemostasis and that their methods were not so crude as many modern writers apparently seem to think. There were indeed giants in those days, and they were not freaks either.

Wiggers: Electrocardiography

PRINCIPLES AND PRACTICE OF ELECTROCARDIOGRAPHY. *By Carl J. Wiggers, M.D., Professor of Physiology in the School of Medicine of Western Reserve University, Cleveland, Ohio. With 61 Illustrations. St. Louis: The C. V. Mosby Company. 1929. Price $7.50.*

During the past few years, several textbooks on electrocardiography have appeared, but there is always room for one more, especially as diagnosis of functional heart disturbances by this method is becoming peremptory, and the cardiologist will find the use of some such apparatus as essential as in the stethoscope or x-ray machine in other diagnostic fields.

Dr. Wiggers' book has the advantage of being written by a practical teacher. In fact, large parts of it are based on lectures to students, on electrocardiography. The physician who studies the subject from this book will, therefore, have all the advantages of a student obtaining information at first hand.

The volume is divided into three sections: The first deals with the general principles and procedures of electrocardiography, including the physics; the second part explains the cause of the normal electrocardiographic deflections and their relation to physical and physiologic processes in the heart; the third section takes up the consideration of abnormal electrocardiograms, taken from clinical patients and presented as diagnostic problems. The points of abnormality are discussed and the diagnosis is ultimately arrived at.

While the first two sections are necessary prologues, to any physician seriously contemplating a study of electrocardiography and the physical principles on which it is based, we consider the third section as much more valuable, from the clinical standpoint, and it is a pity that the author did not extend this part much beyond its present limits.

The book is excellently printed on good paper, the dull glazed surface of which makes it easy to read. The illustrations, also, are clear and not hampered by the contiguity of text which often mars the value of a picture.

The Teaching and Practice of Roentgenology

METHODS AND PROBLEMS OF MEDICAL EDUCATION (Twelfth Series). *New York: The Rockefeller Foundation, 61 Broadway. 1929. Gratis, on request.*

The fifth volume of the *Methods and Problems of Medical Education*, published by the Rockefeller Institute, is devoted to descriptions of departments and institutes of roentgenology and radiumtherapy.

Contributions have been made by the teachers or heads of these departments in the principal hospitals in the United States and Europe. These papers are fully illustrated, the installations and special instrumentation being depicted. There are also plans giving the layout of the x-ray and radium departments and their relation to the general distribution of the hospital.

The opening paper on the general subject is by the veteran Professor G. Holzknecht, of Vienna.

Several of the papers are published in French or German.

There can be no question of the enormous value of these publications to those who are planning additions or alterations to existing hospitals. One almost gets the same information as by making a world tour of these installations, and incidentally, it is easy to make a comparison of the present facilities and equipment of any hospital with similar institutions elsewhere.

Scott: Music and Morals

THE INFLUENCE OF MUSIC ON HISTORY AND MORALS. A Vindication of Plato. *By Cyril Scott. London: The Theosophical Publishing House, Ltd. (Through the Theosophical Press, Wheaton, Ill. 1928. Price $2.50.*

Someone or other is said to have remarked, "Give me the making of the nation's songs, and I care not who makes its laws." The author of this volume elaborates extensively and fascinatingly upon that theme.

The discussion is divided into three sections: (1) Biographic, Analytic and Esthetic; (2) Esoteric Considerations; (3) Historical.

In the first part, the works of Handel, Bach, Beethoven, Mendelssohn, Chopin, Schumann, Wagner and Richard Strauss are considered in some detail, with references to other composers.

The author attributes to music enormous potency of effect upon human thought and behavior. He asserts that the unhumorous conventionality, prudery, and even the hair-cloth sofas, of the

Victorian epoch were directly attributable to Handel's music; that Bach's compositions laid the foundations for Germany's prominence in intellectual matters; that Beethoven's "*sittenverderbendes Werk*" started psychoanalysis; that Chopin's minor harmonies paved the way for the feminist movement; and that the powerful and often misunderstood music of Wagner and Strauss have led to the modern tendency toward individualism and initiated the general movement toward the promotion of human welfare. And he backs up these surprising statements by perfectly plausible and ingenious arguments.

The second part steps off into rather deep but interesting metaphysics, and discusses the works of Cesar Franck, Grieg, Tschaikowsky, Delius, Debussy, Scriabin, Mussorgsky, and several of the other "ultra-modernists" in this field.

In the third part the author traces the history of music, and shows how that of the succeeding races has influenced the history and character of the people.

On the whole, a delightful book (though somewhat "hard" reading) and full of interest for all students of philosophy, especially if they are also musicians.

Haden: Clinical Laboratory Methods

CLINICAL LABORATORY METHODS. *By Russell Landram Haden, M.A., M.D., Professor of Experimental Medicine, University of Kansas, School of Medicine. With 60 Illustrations and 4 Color Plates. Third Edition. St. Louis: The C. V. Mosby Company.* 1929. *Price* $5.00.

This manual was written to provide a simple, practical, but complete outline for the average clinical laboratory worker. That it has fulfilled its mission, is verified by the fact that a third edition is now called for.

All the standard tests for the examination of urine, sputum, feces and blood, are described and mostly illustrated. Chapters are also devoted to serologic procedures and the preparation of bacteriologic stains, solutions, etc., as well as general chemical procedures and solutions.

The present edition contains all additions necessary to bring the work up-to-date, including the Kahn precipitation reactions.

The book can be recommended to any clinical laboratory worker requiring such a manual.

International Clinics

INTERNATIONAL CLINICS. *A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles by Leading Members of the Medical Profession Throughout the World. Volume II, Thirty-Ninth Series,* 1929. *Philadelphia and London: J. B. Lippincott Company. Price,* $3.00 *per volume;* $12.00 *per year.*

The June 1929 number of this serial contains 19 papers, nearly half of which are devoted to diagnosis and treatment. Those contributions which appear to be of the most interest to general practitioners are: "Treatment of Pneumonia," by Dr. A. H. Gordon, Montreal; "The Diagnostic Value of Some Reflexes," by Dr. A. Gordon, Philadelphia; "The Renal Factor in Evaluating the Patient with Chronic Gastrointestinal Symptoms," by Dr. J. Forman, Columbus; "Degenerative and Diffuse Inflammatory Diseases of the Liver," by Drs. G. Baehr and P. Klemperer, New York City, and "The Significance of Injuries at the Ilio-Ischio-Pubic Junction of the Acetabulum in Children," by Dr. H. Keller, New York City.

The volumes of this series, if carefully studied, offer a reasonably adequate substitute for personal postgraduate instruction.

Blanchard: Proctology

A TEXT-BOOK OF AMBULANT PROCTOLOGY. *By Charles Elton Blanchard, M.D. Illustrated. Youngstown, Ohio: Medical Success Press,* 36 *N. Phelps St.* 1928. *Price* $10.00.

The author seems to have solved the problem of distinguishing between meat and chaff. He makes every page say something. The book represents the results of twenty years of reading, research, study and practice. His experiences comprise the work required to meet the needs of patients under treatment and of professional students doing post-graduate work.

The book of 400 pages has more than 100 illustrations. Dr. Blanchard is very definite in his suggested formulas, instruments and equipment, including his source of supply, which is most unusual in a scientific treatise.

The twenty chapters include the economics of this specialty (including methods for direct advertising to the laity), as well as therapeutics, surgery and dietetics, although the author modestly suggests that possibly he may have omitted some facts which might be added to subsequent editions.

F. B. K.

Collected Papers of the Mayo Clinic

COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION. *Edited by Mrs. M. H. Mellish, Richard M. Hewitt, B.A., M.A., M.D., and Mildred A. Felker, B.S. Volume XX,* 1928. *Philadelphia and London: W. B. Saunders Company.* 1929. *Price* $13.00.

This is the twentieth of these valuable annual volumes. The general purpose of the publication is: (1) to make available in one volume all of the papers (complete, in abstract or by reference only) produced during the year by members of the Mayo Clinic and Mayo Foundation; and (2) to compile from this material one volume which shall be of value to the general practitioner, diagnostician and general surgeon.

The 1928 issue deals with 429 papers, 81 of which are reprinted in full.

Quigley: Conquest of Cancer

THE CONQUEST OF CANCER BY RADIUM AND OTHER METHODS. *By Daniel Thomas Quigley, M.D., F.A.C.S., Instructor in Surgery in the University of Nebraska College of Medicine; etc. Illustrated with* 334 *Engravings. Philadelphia: F. A. Davis Company.* 1929. *Price* $6.00.

Few physicians will agree with the author's statements that we probably know more about cancer than about any other chronic disease and

that, instead of being hopeless from the standpoint of cure, it is probably the most easily and surely curable of any of the chronic diseases.

The view that cancer results from infection is supported, but apparently the author does not think it important to offer any definite proof. It is one thing to say that the failure of infection-fighting mechanism in the body causes cancer or that the dominant factor in the stimulating of cells to proliferate can not be other than the presence of low-grade pathogenic microorganisms. In the absence of any proved etiologic basis for cancer anyone has the right to advance any theory, but the onus of proof rests upon him if he wishes it to be accepted.

There are many generalities of a popular, plausible type in the author's presentation, which may pass muster with a non-discriminating public, but which the experienced physician will reject. The rules for avoidance of cancer, in regard to diet, hygiene and the general mode of living, are so comprehensive and indefinite that they may be summarized in the statement: Keep well and avoid all disease and you will not get cancer.

The portion of Dr. Quigley's book dealing with treatment is much more attractive. Apparently some excellent results have been achieved with radium and the author is enthusiastic about it and looks to the time when radium hospitals will be general. While radium does give wonderful palliative results, it needs unbiased opinion to accept it as a panacea for all types of malignant disease, even if they are recognized and treated in the very early stages.

We cannot quite see that Dr. Quigley's book greatly furthers the conquest of cancer.

Brugsch & Lewy: Biology of the Individual

DIE BIOLOGIE DER PERSON. *Ein Handbuch der allgemeinen und speziellen Konstitutionslehre. Unter Mitarbeit zahlreicher Fachmänner herausgegeben von Prof. Dr. Th. Brugsch, Berlin, und Prof. Dr. F. H. Lewy, Berlin. Band IV, Lieferung, 4, 5, 10, 12, 14. Berlin NW24: Urban & Schwarzenberg, Friedrichstrasse 105 B. 1929. Price Mk. 65.80.*

Parts 4, 5, 10, 12 and 14 of Vol. IV. of the authors' monumental handbook of the biology of the individual, contain 18 contributions on the subject by various authors. These include the individual's life as affected by physical and psychic constitution, by the environment, by nationality and national characteristics, and by religion. Those who read German, will find the various topics dwelt upon in great detail.

Brubaker: Physiology

A COMPEND OF HUMAN PHYSIOLOGY. *By Albert P. Brubaker, A.M., M.D., Professor of Physiology and Medical Jurisprudence in The Jefferson Medical College. Sixteenth Edition. Illustrated. Philadelphia: P. Blakiston's Son Co. 1927. Price $2.00.*

Most medical students as well as practising physicians are acquainted with this book as a volume of extreme usefulness in summarizing the entire subject of human physiology. This (sixteenth) edition is essentially similar to previous editions in its organization and presentation of the subject. Some portions are revised and new material has been incorporated to bring the contents to date. The new matter includes an account of vitamins, the synapse, enzymes, the mechanism controlling the opening and closure of the pyloric orifice, the formation of bilirubin, the sequence of the sinus, auricular and ventricular contractions, the relation of carbonic acid in the venous blood and basal heat production.

H. C. S.

Medical Department in World War

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR. *Volume III, Finance and Supply. Prepared Under the Direction of Maj. Gen. M. W. Ireland, The Surgeon General, by Col. Edwin P. Wolfe, M.C. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office. 1928. Price $3.00.*

Vol. III of the history of the Medical Department of the United States Army in the World War is devoted to the financing and supply of the Department and to showing how it functioned as a supply department during the period of hostilities.

The volume is an index of the accomplishments of the Medical Department in the War and it is a tribute to it that, at the close of hostilities, it emerged without material criticism, in marked contrast to its position in previous wars.

Moncalvi: Perforative Peritonitis

PERITONITI PERFORATIVE. *(Da Ulcera Gastroduodenale, Appendicitiche, Biliari, Tifose, etc.) Dott. Lodovico Moncalvi, Chirurgo aiuto dell 'Ospedale Maggiore di Milano. Milano, Italy: Società Editrice Libraria, Via. Ausonia, 22. 1929.*

The author's studies of perforative peritonitis are based on his findings in 362 cases of acute peritonitis in the total of 5,481 necropsies performed in the Ospedale Maggiore, Milan, 1920-25. Of the 362 cases, 164 were perforative.

Study of this monograph should be interesting to surgeons who read Italian, but especially to physicians, who will find in it clinically analysed episodes of the greatest importance which arise in connection with peritonitis but which are not always easy to interpret. The peritonites dealt with are especially those arising from gastroduodental ulcer, appendicitis, and from biliary tract and typhoid conditions..

MEDICAL NEWS

Mendel Medal to Dr. Kolmer

Villanova College, Villanova, Pa. (a suburb of Philadelphia), recently established a prize, known as the Mendel Medal (in honor of Gregor Mendel, who formulated the laws of heredity), which is conferred annually upon that Roman Catholic scientist who has achieved the greatest distinction during the year.

The Mendel Medal has recently been awarded to Dr. John A. Kolmer, professor of pathology and bacteriology, University of Pennsylvania.

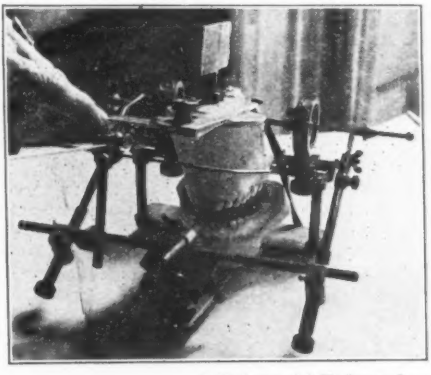
"Chemistry in Medicine" a Notable Book

At the request of the International Institute of Intellectual Cooperation, of the League of Nations, the American Library Association has selected, from the mass of material published in the United States, in 1928, what will be known as the World List of Notable Books, forty in number. Among these is that remarkable volume, "Chemistry in Medicine," edited by Julius O. Stieglitz and published by the Chemical Foundation. Many of our readers are familiar with this work and it should be in the hands of all physicians.

Hotels as Barracks

The *Reserve Officer*, for May, is authority for the statement that, in the event of another military emergency, hotels will be commandeered as barracks for mobilizing the Army, and adjacent streets will be closed and used for drilling.

Such a scheme will result in immense monetary savings, as well as reducing the danger of great respiratory epidemics and facilitating the work of the medical officers who will care for the new levies during their training period.



© Underwood & Underwood.

Artificial Jaws

Dr. David W. McLean, a dentist, of Los Angeles, in order to develop a new dental idea which he calls "gnathology," has invented an apparatus which works from side to side and up and down, just as the natural jaws do.

When upper and lower impressions of

a patient's teeth are placed in this machine, it is possible to study any possible defects in the chewing mechanism, which, hitherto, has been practicable only on a very limited scale.

© Underwood & Underwood

A Prominent Indian Physician

Dr. M. R. Gurnswami Mudaliar, professor of materia medica at the Madras Medical College, India, has been sent to Great Britain, by the government of Madras, to study medical therapeutics in the British universities.

Oldest Woman Physician

The oldest living woman physician is Dr. Harriet Clisby, an Englishwoman, now living in London, though she received her medical degree in the United States, in 1865. She is now 99 years old and is said to be remarkably well-preserved and active for her years.

She practiced for twenty years in Boston and was personally acquainted with Longfellow, Emerson, Whittier and Garrison.—*Med. Pocket Quarterly.*

Call for the Pharmacopeial Convention

A call has been issued, under date of May 25, 1929, to all organizations and agencies entitled to representation, to appoint delegates to the Eleventh Decennial Pharmacopeial Convention, to meet in Washington, D. C., on May 13, 1930, to consider the periodic revision of the pharmacopeia.

United States Civil Service Examinations

The United States Civil Service Commission announces the following open competitive examinations:

Physician, $3,800 *a Year*
Associate Physician, $3,200 *a Year*

Applications for the above-named positions must be on file with the Civil Service Commission at Washington, D. C., not later than December 30.

The examinations are to fill vacancies in hospitals of the Veterans' Bureau for duty throughout the United States.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

Send For This Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceuticals, physicians' supplies, foods, etc., CLINICAL MEDICINE AND SURGERY, North Chicago. Ill., will gladly forward request for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering, our readers may use these numbers and simply send requests to this magazine. Our aim is to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physicians' use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

When requesting literature, please specify whether you are a doctor of medicine, dentistry, medical student, a registered pharmacist, or a nurse.

T- 2 Your Prestige and Profit. 8-page booklet. The Carroll Dunham Smith Pharmacal Co.

T- 3 Storm Binder and Abdominal Supporter. 4-page folder by Dr. Katherine L. Storm.

T- 5 Ethical Medicinal Specialties. 8-page booklet. A. H. Robins Co.

T- 7 The Cure of Cystitis, Pyelitis and other inflammatory Conditions of the Urinary Tract. Chicago Pharmacal Co.

T- 17 An Index of Treatment. Burnham Soluble Iodine Co.

T- 45 Vera-Perles of Sandelwood Comp. Paul Plessner Co.

T- 47 Campho-Phenique in Major and Minor Surgery. Campho-Phenique Company.

T- 49 The Calcreose Detail Man. Maltbie Chemical Co.

T- 50 Outwitting Constipation. Standard Oil Co.

T- 56 Regaining Health. How Science Can Guide You! The Fleischmann Company.

T- 85 Ultraviolet for Health. Hanovia Chem. & Mfg. Co.

T- 95 Everything for the Sick. Lindsay Laboratories.

T-103 The Electron, July, 1929. McIntosh Electrical Corporation.

T-112 Atophan after more than Fifteen Years of ever expanding use, etc. Schering & Glatz.

T-116 Hemo-Glycogen, The New Product Hemoglobin Compound and Liver Extract. Chappel Bros., Inc.

T-120 Building Resistance. William R. Warner & Co., Ltd.

T-156 Siomine (Methenamine Tetraiodide). Pitman-Moore Company.

T-169 The Quartz Lamp, July 15, 1929. Hanovia Chemical & Mfg. Co.

T-176 The Hormone, July—24 pages and cover, published bimonthly. The Harrower Laboratory.

T-189 High Blood Pressure — Treatment with Theocalcin. E. Bilhuber, Inc.

T-194 Fracture Book—1928 Edition. DePuy Mfg. Co.

T-196 "Facts Worth Knowing." Intravenous Products Co. of America, Inc.

T-197 Bulletin. Illinois Post Graduate Medical School, Inc.

T-199 Activin in Non Specific Protein Therapy. Ernst Bischoff Co.

T-204 News and Views from French Lick. French Lick Springs Hotel Co.

T-211 The Etiology and Treatment of Hay Fever—Hay Fever Antigens. The National Drug Co.

T-218 Eupinol. A distillate produced at a special temperature from the resinous wood of Pinus Palutris. The Tilden Company.

T-222 Autumn Leaves — Guiatonic. Wm. R. Warner & Co., Inc.

T-227 The Romance of Digitalis. The Hoffmann-La Roche, Inc.

T-228 Ye Olden Day Cough Physic. The Tale of a Drug which Columbus gave to Isabella. The Hoffmann-La Roche, Inc.

T-233 Gland Tidings. G. W. Carnrick Co.

T-235 A Real Problem Solved (Clinical Medicine). The Health Cigar Co.

T-236 Throughout the Span. Advanced Age. William R. Warner & Co,, Ltd.

T-244 I Am Oxiphen! Pitman-Moore Co.

T-247 Colitis, A Common and Increasing American Disease. The Battle Creek Food Company.

T-255 Mellin's Food Biscuits. Mellin's Food Company.

T-256 The Modern Way of Giving Digitalis. Upsher Smith Co.

T-258 Prophylaxis, August E. Drucker.

T-262 Journal of Intravenous Therapy, July, 1929, Loeser Laboratory.

T-268 Eat Uncle Sam Health Food. Uncle Sam Breakfast Food Co.

T-269 Special Course No. VI Traumatic Surgery. Illinois Post Graduate Medical School, Inc.

T-270 Pharmaceuticals of Established merit. E. Bilhuber, Inc.

T-271 The Intestinal Flora. The Battle Creek Food Company.

T-277 Cicatrical Resolvent. Fibrolysin. Merck & Co., Inc.

T-281 Differential Diagnosis in Renal Diseases. Reed & Carnrick.

T-286 Ultra Violet Therapy in Your Office. A. S. Aloe Co.

T-292 Acidosis and Infection—Alka-Zane. William R. Warner & Co., Inc.

T-297 Prescription Folder. Burdick Corp.

T-300 Useful Every Day. E. Bilhuber, Inc.

T-301 Merrell's Salicylates. The Wm. S. Merrell Company.

T-309 The Jones Basal Metabolism Unit. Geo. W. Brady & Co.

T-310 Conclusions from published research on the value of Ceanothyn as a hemostatic. Flint, Eaton & Co.

T-314 What is the Treatment of Choice. Burdick Corporation.

T-318 Blood Clinical and Laboratory Diagnosis. A book of 160 pages by Henry Irving Berger, M.D. Battle & Company.

T-319 Rational Treatment of Colonic Stasis. Schellberg Mfg. Corp.

T-327 The Intravenous Administration of Bismuth. Loeser Laboratory.

T-328 The Technic and Development of Intravenous Therapy. Loeser Laboratory.

T-330 Service-Suggestions. Victor X-Ray Corporation.

T-332 Polysine Philosophy. A concise book of technique and general guide on the Sinusoidal Currents and their combinations. McIntosh Electrical Corporation.

T-333 Snook, X-Ray Apparatus. Victor X-Ray Corporation.

T-334 August to Frost Hay-Fever. The Arlington Chemical Company.

T-335 The Bloodless Phlebotomist. The Denver Chemical Manufacturing Company.

T-336 The Secret of our Digestive Glands. J. W. Wuppermann Angostura Bitters Agency, Inc.

T-337 Development and Status of Intravenous Therapy. Loeser Laboratory.

T-338 The Intravenous Administration of Strontium. Loeser Laboratory.

T-339 The Use of Gold in Therapeutics. Loeser Laboratory.

T-340 Bacterial Mechanics in Intestinal Chemistry. Schellberg Mfg. Corporation.

T-341 History and Usage of Zinc-Borocyl. Alpha Products Co., Inc.